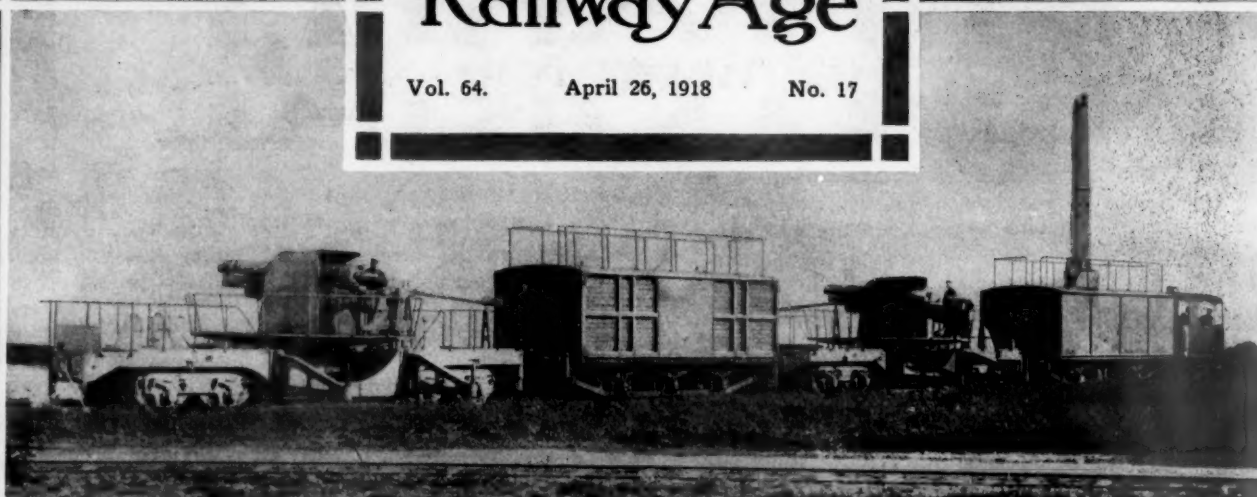


Railway Age

Vol. 64.

April 26, 1918

No. 17



French Mortar, Ammunition Car and Observation Tower. Photo by Press Illustrating Company.

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Simmons-Boardman Publishing Company, Woolworth Building, New York

EDWARD A. SIMMONS, Pres. L. B. SHERMAN, Vice-Pres. HENRY LEE, Vice-Pres. & Treas. M. H. WIUM, Secretary.
CHICAGO: Transportation Building. CLEVELAND: Citizens Building. WASHINGTON: Home Life Building.

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ROY V. WRIGHT, Managing Editor.

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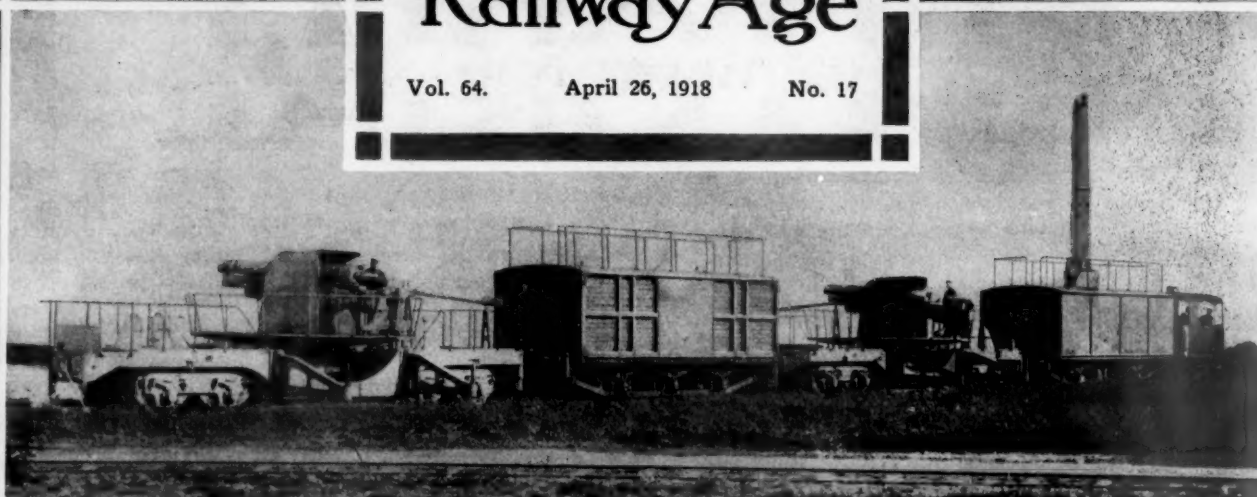
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EDITORIAL

Railway Age

On another page we publish an article concerning the latest developments regarding the standardization of locomotives.

Standardization of Locomotives

The *Railway Age* has for some weeks been discussing the subject fully and earnestly. It has not been inspired in doing so by any spirit of antagonism to the Railroad Administration. The railways must be operated efficiently if America is to play its part in the war; the Railroad Administration now has the primary responsibility for the operation of the railroads, and it is therefore entitled to the loyal and energetic support of every concern, person or publication in a position to affect railroad operation. But if any person or publication believes the Railroad Administration is in danger of making a serious mistake, it is that person's or publication's duty to say so and give the reasons for the belief. The *Railway Age* has believed that the Railroad Administration has been in danger of making a serious mistake in the matter of locomotive standardization, and it has said so and told the reasons for its belief. The time has now come when the question should, for the present, be settled in some way, and that orders for some kind or kinds of locomotives should be placed. It is to be hoped, however, that the standardized locomotives will be treated as what they are actually, viz.: an experiment; that the number of them ordered will not be excessive; and that the individual lines which require other types will be given an early opportunity to obtain them.

Although the American Railway Engineering Association is primarily an engineering organization, it includes in its

An Opportunity for Operating Studies

membership a considerable number of railway men in operating and executive positions. Some of these are men who joined the association when in the engineering department, and who have since been transferred or promoted into operating positions. Others who have risen through the operating department have become identified with this organization in order to participate directly in the benefits resulting from membership. With the continually increasing necessity for the application of more scientific methods of operation there is a growing realization of the value of accurate analyses of grade lines, train loading, track capacities and other operating conditions. The American Railway Engineering Association has given consideration to the engineering phases of such problems in the past through its Committee on Economics of Railway Location, while other committees such as that on Yards and Terminals, have studied special phases of operation. Last year the association went a step further and created a new standing Committee on Economics of Railway Operation. It now has, therefore, an organization, through which studies of operating problems of other than an engineering nature may be undertaken. This committee offers a medium through which operating men can work together to solve the problems which are confronting them.

Furthermore, the activities of this committee will undoubtedly lead to the development of valuable information for inclusion in the proceedings. This in turn should prove an incentive to other operating men to enroll in its membership to secure access to this data. In covering this field of activity the American Railway Engineering Association is entering a sphere not occupied by any other organization. It is to be hoped that operating men will avail themselves generally of the privilege of membership in this organization in order that the investigations of an operating nature which are undertaken may be made the most valuable and may be placed in the hands of the largest number of interested railway men.

The matter of trespassing on railways is an important one at any time. It is especially important under present conditions. About 5,000 persons are killed

Trespassing Under Govern- ment Control

and 5,000 seriously injured annually as a result of this practice. At a time when the nation needs all its manpower as it never needed it before—and, let us hope, will never need it again—no reasonable effort should be spared to stop the careless or reckless conduct which results in the killing and maiming on the railways of an average of 30 persons every day in the year. With the railways being operated under government control, there is another phase of the matter which should appeal to public officials. Trespassers on the railroads in many instances interfere with operation and do damage to railroad property. In many cases the killing and injuring of them results in damage suits. While the railways are under government control the expense which directly and indirectly results from trespassing must be borne by the government itself. The Interstate Commerce Commission, before government control was adopted, recommended the consideration by Congress of federal legislation to prevent trespassing. The arguments for legislation on this subject and for its strict enforcement always have been strong, but they are stronger now than ever before.

Keeping highway crossing gates closed, except when the highway must be opened for traffic, has proved very satisfactory. This is the conclusion of the

Increased Safety at Highway Crossings

chief inspector of the New York State Public Service Commission (first district) after a review of six months' experimental operation of this rule at 144 crossings in New York City. The rule, which went into effect August 22, is in force from midnight to 5 a. m. One taxi-cab has broken through a gate, but the driver was called into court and pleaded guilty. No person has been injured, during the five-hour period, at any of these crossings. At the hearing given by the Commission, prior to the issuance of its order, some one presented the theoretical objection that to keep gates closed when no train was coming would invade the constitutional rights of travelers on the highway; but the only request received by the commission for a suspension of the rule was one from the Staten Island Civic League, saying that in their territory there are no scheduled trains after midnight; it was not granted.

Whether the members of this league are particularly addicted to traveling in the "small hours" does not appear; but the commission called attention to the obvious fact that extra trains, though infrequent, introduce more risk than do the regular trains. The prevention of accidents to persons is a sufficient justification for keeping gates normally closed at night, for no one has discovered any better way of dealing with the sleepy attendant; but the rule has also proved a much-appreciated relief to enginemen; they have a feeling of security where, before, they frequently observed gates left open and attendants asleep or lazy. Now, the attendant who does not promptly open the gates for motorists, or others, not only risks being complained of by the travelers but also risks censure from his superior for not preventing damage to gates, as in the case noted. More than two-thirds of the 144 crossings covered by this rule are on Long Island.

A Good Record in Moving Coal

THE COMPLAINT of the fuel administrator, Dr. Garfield, that the railways moved less coal in the week of April 6 than in previous weeks has directed attention once more to the important problem of coal transportation. The statistics regarding the coal moved thus far this year which have been made public by the Railroad Administration show that while the complaint of the fuel administrator was based on facts it was also very unjust.

The *Railway Age* published in its issue for April 19 statistics showing that to the end of the first week in April the railways had moved a total of 6,441 more carloads of coal this year than they did during the corresponding period of 1917. Statistics regarding the coal movement for the second week in April are now available. They show that to the end of the second week in April the railways had loaded 28,660 carloads more than during the corresponding period of last year. In other words, while there was a decline in the amount of coal loaded in the single week ending on April 6, there has been in the entire period since January 1 an increase over last year in the total number of cars loaded of almost 29,000 cars.

The record made by the railways thus far this year is even better than these figures indicate. Nobody has forgotten that the weather of January, 1918, was the most severe that has been experienced in many years. Principally because of this there was in that month an actual decrease of 79,172 in the number of cars loaded. On the other hand, in the months of February and March and in the first two weeks of April there was an increase in the number of cars loaded over the same period of last year of 107,832 cars, or $4\frac{1}{2}$ per cent. In other words, the net increase of 28,660 in the number of cars loaded in the first three and one-half months of the year was made in spite of a large reduction in the amount of coal moved in January.

In a statement regarding the decline in the amount of coal loaded in the week ending April 6, Dr. Garfield said, "A large part of the shortage is due to the continued lack of transportation service, as evidenced by the shortage of cars placed at the mines to be loaded." His statement referred especially to the situation in the bituminous coal fields. Since then statistics of the United States Geological Survey for the week to which he referred have become available. These do not support his statement. They show, on the contrary, that while the bituminous mines produced 38.1 per cent less than their maximum capacity, only 12.5 per cent of this failure was due to car shortage, while 25.6 per cent of it was due to labor shortage, strikes and other causes. The United States Geological Survey specifically says, "The exceptional loss of production in the week of April 6 is therefore to be attributed to labor shortage rather than car

shortage, in all fields reported with the particular exception of Ohio and New River districts."

It is unfortunately true that the railways are and long have been unable to transport as much coal as the mines can produce. It is probable that this condition will continue indefinitely. But neither the Railroad Administration nor the railway companies are responsible for the existing inadequacy of railway facilities. The present transportation situation is mainly the result of the nation's persistence for over ten years in pursuing a policy of repressive regulation which rendered it impossible adequately to increase railway facilities.

Furthermore, nothing is to be gained by picking out exceptional weeks, as was done in this instance, as a basis for criticising the railways, and ignoring the fact that, excepting in occasional brief periods, they are loading more coal than in corresponding periods of previous years. And certainly nobody is going to be benefited by attempts to put on the railways the blame for failure in exceptional weeks to increase the loading of coal when the facts show, as do those for the week on which Dr. Garfield based his complaint, that most of the failure to secure greater production of coal was not due to transportation conditions.

Railroad Influence in National Movements

A UNIQUE FUEL CONSERVATION CAMPAIGN now being carried on by the Northern Pacific is described elsewhere in this issue. This adds another item to the long list of worthy movements which the railroads have been active in fostering, not only as they affect the interests of the companies and their employees, but designed in a broad way to promote the best interests of the country and the public at large. In the past the railroads have lent their support to colonization work, to the movement for the conservation of natural resources, to the safety first propaganda, to public sanitation work and other similar activities. Although in their inception the work of the railroads in furthering these movements was in most cases undertaken because it was felt that it would be of advantage to the roads, in the majority of instances it has been carried to the point where it involved the interests of large classes of people, or whole sections of the country, or even assumed importance as a nationwide movement.

The advantages of a broad policy in such matters can hardly be overestimated. It is important for the railroads to know the attitude of the public and also to bring the people to see the viewpoint of the road. Such educational campaigns furnish one of the best means at their disposal for bringing home to the people the fact that in the broad questions of public policy, the interests of the railroads are identical with those of the country as a whole. Unselfish work for national movements is one of the best methods that can be adopted for promoting good feeling in the public mind toward the carriers. Public sentiment in matters concerning the railroads is less antagonistic than it was a few years ago, and this good feeling should be fostered in every way possible. It may be necessary to make reductions in passenger service and to use other means of saving fuel which may cause inconvenience to the patrons of the roads. Despite the fact that the responsibility for the operation of the roads has been assumed by the government, unpopular measures will still react on the carriers. Such campaigns as that now in progress on the Northern Pacific will do much to assure an understanding and a sympathetic co-operation by the general public under such circumstances and deserve the railroads' hearty support.

Prices of Coal for Railroads

THERE RECENTLY has been going on a controversy between Dr. Garfield, the head of the Fuel Administration, and John Skelton Williams, director of purchases of the Railroad Administration, regarding the prices which railroads should be required to pay for coal. Dr. Garfield has contended that the railways should pay the same prices as other large consumers. Mr. Williams has contended that the railways should be sold coal at lower prices than other large consumers.

Dr. Garfield bases his stand largely on theoretical considerations of equity. He seems to think it is morally wrong for railways to be given coal for less than other users. He also argues, it is understood, that the payment by railways of the regular government prices is necessary to keep all mines now operated open and to secure maximum output.

There seems to be an impression that Mr. Williams is asking for differential prices for the railways is asking for something new and even revolutionary. As a matter of fact, he is seeking a continuance of practices which have prevailed in the past and which always have been recognized as based on sound commercial principles. Just how much less railways should be charged for coal than other consumers is an open question, but that they should not be required to pay prices which have been fixed as reasonable for other consumers seems clear. The railways in the past have been made lower prices than other consumers for several reasons. In the first place, they are wholesale customers. They use from one-fourth to one-third of all the coal produced. Now, obviously, regardless of the matter of car supply, it does not cost a coal operator as much per ton to furnish coal to a single very large customer, such as a railway, as to furnish it to many smaller customers. Most of the selling and overhead expenses he incurs in furnishing coal to a railway are relatively less than those he incurs in selling to smaller customers.

Furthermore, the railway furnishes to the coal operator the means of transporting his product, and when he has a railway for a customer it can arrange to furnish him as many cars as he requires in order to fill his contract with it. With an ampler car supply than he otherwise would have he can secure a larger output than he otherwise could obtain, and the larger and more regular the output he can obtain the cheaper he can produce the coal. It is argued that the railway should distribute its cars equitably among the mines along its line and should not be allowed to use its power to furnish cars as a means of forcing down the price. But each railway must, as a matter of public necessity, be furnished all the coal that it requires. If the railways do not get all the coal they need they will be rendered unable to operate to their maximum capacity; and if they are unable to operate to their maximum capacity they cannot haul the greatest practicable amount of freight, including coal. Since in order to enable the railway to handle the maximum amount of coal and other traffic for other persons it is necessary that it shall be furnished all the coal that it requires, and since when it furnishes a full supply of cars to a mine it becomes possible to operate that mine more regularly and therefore to produce coal from it more cheaply, it seems to follow that the coal produced for the railway should be sold to it at a lower price than coal is sold to other customers who are smaller purchasers and who do not furnish the car supply which makes it possible to operate the mine more economically.

If a railway were a concern which entered into competition with other concerns to which the coal was sold, the objection to selling to it at a lower price than to other customers could be urged with more force. But the railway is not a commercial competitor of other consumers of coal, and the actual effect of selling it coal cheaper than other consumers is to enable it to operate more economically, and

thereby to render transportation service cheaper than it otherwise could to other users of coal.

We do not understand that the present government prices for coal originally were fixed with the intention that they should be paid by the railways as well as by commercial consumers. They were fixed with a knowledge of the fact that the railways were getting and always had got their coal cheaper than other consumers. Therefore, to require the railways to pay the government prices would be to raise the cost of coal to them without reducing it to other consumers. The effect, while the railways are being operated under government control, would be to increase their operating expenses at the expense of the government itself.

It would seem that it ought to be possible for the Railroad Administration and the Fuel Administration to reach some agreement under which the railways would be granted reasonable, differential prices for coal. If, however, theoretical principles of equity rather than commercial principles of long standing are to prevail and the prices charged railways are to be made the same as those charged other consumers, it would seem that the increase in prices to the railways should be accompanied by some reduction in the prices to the public, provided this would not interfere with securing the largest output of coal which the railways can transport. So necessary is it to secure the maximum practicable output of coal that the question of prices ought, of course, to be subordinated to the question of the best means of securing maximum production.

Norfolk & Western

HAD IT NOT BEEN for the increase of over 100 per cent in taxes, the Norfolk & Western would have had almost as much available for dividends in the calendar year 1917 as in its banner year 1916. Briefly summarized, the reasons for this rather extraordinary result are the increase of 7.35 per cent in the average revenue per ton per mile and the increase of 4.21 per cent in tons carried per train; a slight decrease in the amount spent for maintenance of way; the large increase in the credit balance for hire of equipment and rent of other equipment; and an increase of nearly 18 per cent in passenger revenue with an increase of only about 2.28 per cent in passenger train mileage.

Norfolk & Western's cost of moving the business ran up in much the same way as with other eastern roads. Transportation expenses amounted to \$20,808,000, an increase over 1916 of \$6,030,000, or 40.81 per cent. Maintenance of equipment also cost more, the total in 1917 being \$12,052,000, an increase of 16.53 per cent over the previous year. These increased labor and material costs were nearly offset by the factors mentioned above. There was charged to taxes, however, \$5,095,000, or \$2,615,000 more than in 1916, an increase of over 105 per cent. It would appear that this charge to taxes makes ample provision for all new federal taxes imposed during 1917. After paying interest charges and rentals, Norfolk & Western had \$18,946,000 available for dividends, as compared with \$21,800,000 in 1916. The 4 per cent dividends on the preferred calls for \$920,000; the company paid a total of 8 per cent, which includes an extra dividend of 1 per cent declared in March, on its common stock, making a total dividend payment on both common and preferred of approximately \$10,500,000.

There was actually less coal carried by the Norfolk & Western in 1917 than in 1916, and the average length of haul was shorter. The bituminous coal carried in 1917 was 29,005,000 tons, or only 60.18 per cent of the total revenue freight carried. In the three years preceding 1916, bituminous coal has furnished more than 68 per cent of the total revenue freight tonnage and in the fiscal year ended June 30, 1915, it formed over 71 per cent of the total ton-

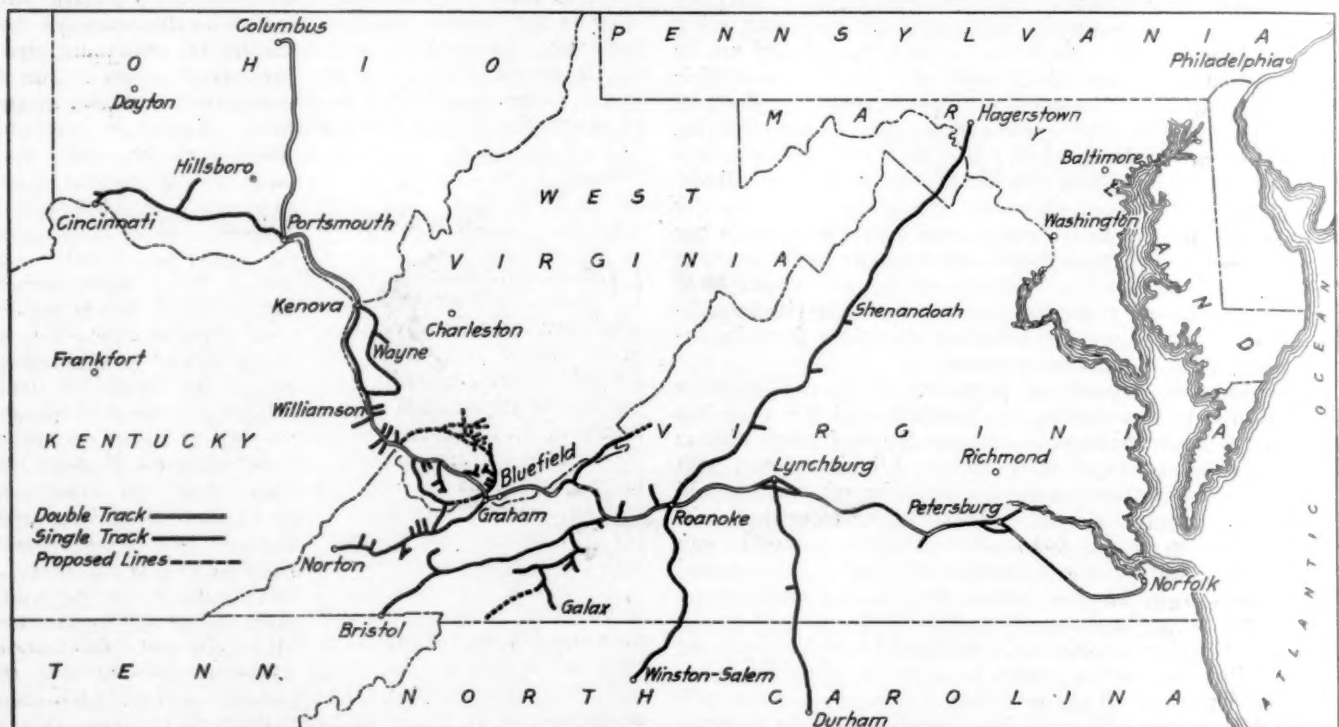
nage. In 1916 it was over 66 per cent of the total tonnage. The average revenue for coal per ton mile, however, was 4.53 mills in 1917, as against 4.43 mills in 1916. As an offset to the smaller coal traffic, there was an increase of 397,000 tons of coke carried—the total in 1917 being 2,359,000 tons—and of 440,000 tons of ore—the total in 1917 being 1,756,000 tons—and a very large increase in the tonnage of manufactured products, the total in 1917 being 6,987,000 tons, an increase of 1,357,000 tons over 1916.

These changes in traffic conditions gave the Norfolk & Western a better balanced freight movement, so that with an average freight train, excluding the caboose, of 45.77 cars in 1917, 29.27 of these were loaded and 16.50 empty; while in 1916, with an average train of 46.73 cars, 28.86 were loaded and 17.87 empty. This was a factor favorable to a heavier trainload, but, on the other hand, the fact that there was a smaller proportion of coal and a larger proportion of manufactures, made it more difficult to get an increased trainload. The Norfolk & Western, however, has now joined the class of the Chesapeake & Ohio, with an average revenue trainload of over 1,000 tons. In 1917 the revenue trainload averaged 1,021 tons and the loading per loaded freight car

division. On this division steam locomotive repairs average \$19.03 and fuel cost \$30.54, or considerably more than the average for all steam locomotives. The Norfolk & Western management figures the cost of repairs, retirements and depreciations of freight steam locomotives per thousand ton miles moved at 32 cents in 1917 and 29 cents in 1916 and the repairs, retirements and depreciations of the electric freight locomotives at 10 cents per thousand ton miles in 1917 and 8 cents in 1916.

In 1917 the Norfolk & Western spent \$8,573,000 on additions and betterments, which included \$2,584,000 for new equipment completed or under construction during the year. The new equipment received included eight steam passenger locomotives, 20 steam freight locomotives, fifty 90-ton steel flat bottom, gondola cars, and 438—57½-ton drop bottom, gondola cars. The largest single item of expenditure for roadway and track was \$886,000 for sidings and spur tracks. There was \$495,000 spent for block and other signal apparatus.

Norfolk & Western has bought the leasehold interests in 3,800 acres of coal lands in Mingo County, West Virginia, and Pike County, Kentucky. This will furnish about one-



The Norfolk & Western

mile averaged 34.87 tons. The Norfolk & Western's grades are not so good as the Chesapeake & Ohio's but it is believed that the electrified portion of the Norfolk & Western has greatly aided both in facility of movement and economical operation. It is estimated that the cost of freight movement on the electrified division in October, 1917, was 26 per cent less than if steam locomotives alone had been used. This does not presumably, of course, take into consideration any overhead (capital) charges.

It is rather interesting to note that the average cost of repairs of electric locomotives per 100 miles was \$38.96 in 1917, as against \$28.21 in 1916, and of steam locomotives, \$15 in 1917 and \$12.72 in 1916. Fuel cost per 100 miles for the electric locomotives was \$44.95 in 1917 and \$27.74 in 1916, and for steam locomotives, \$24.14 in 1917 and \$11.48 in 1916. It must be remembered, however, that these comparisons are not fair to the electric locomotive, because of the inclusion of a large number of light steam locomotives. The electric locomotives are used on the Pocahontas

sixth of the fuel coal consumed and this coal is especially adapted to the use of mechanical stokers.

There was a decrease of \$1,270,000 in the amount of available bonds outstanding, these bonds having been exchanged for stock. There was also \$1,300,000 equipment trusts which fell due and were paid off. At the end of the year the company had on hand \$4,214,000 and no loans and bills payable. The following table shows the principal figures for operation in 1917 and 1916:

	1917	1916
Average mileage operated.....	2,085	2,080
Freight revenues	\$56,381,036	\$51,114,186
Passenger revenues	7,023,153	5,956,081
Total operating revenues	65,910,242	59,449,982
Maintenance of way and structures	6,176,369	6,771,473
Maintenance of equipment.....	12,051,912	10,342,501
Traffic expenses	809,723	739,052
Transportation expenses	20,808,290	14,778,086
General expenses	1,217,101	977,998
Total operating expenses.....	41,161,503	33,508,732
Taxes	5,095,000	2,480,000
Operating income	19,651,816	23,459,266
Gross income	23,182,056	26,160,572
Net income	18,946,137	21,800,074
Dividends	10,552,297	10,013,856

The Fifth National Foreign Trade Convention

"The Part of Foreign Trade in Winning the War," the Theme
of Meeting in Cincinnati Last Week

THAT NEXT TO WINNING THE WAR, the most important task before American business today is to prepare for the enormous foreign trade that will be open to America at the close of the war, was the sentiment of everyone of the thousand or more leaders of American business who attended the Fifth Annual Foreign Trade Convention in Cincinnati last week.

"The Part of Foreign Trade in Winning the War," was the theme of the most successful Foreign Trade Convention that has yet been held, but again and again in the sessions it was brought out that we shall have no more excuse for being unprepared for the coming of peace than we were for the coming of war.

Shipping, the part that industry is playing in helping win the war, the work of the War Trade Board, the assistance now being given to American exporters by the government Bureau of Foreign and Domestic Commerce, banking facilities, foreign credits, and co-operation in foreign trade, were among the important matters brought up for extended discussion at the convention.

Speakers brought out how American industry was bending every energy today in war work. They showed how much of this work would have a lasting value with the return of peace, particularly from the standpoint of foreign trade and pleas were made for a recognition of that fact by the American people and their constituted authority in Congress. Thus in speaking of the shipping situation, experts pointed with pride to the progress that has been made with our shipping program and to the rapid expansion that has taken place and to the more rapid expansion that will take place in America's merchant marine and in our shipbuilding capacity. Attention was drawn to the fact that this merchant marine will all be available after the war for American export trade, but it was shown that full use of this merchant marine could not be made with the present discriminatory laws against American shipping now on the statute books of Congress. It has been on account of these laws, said Robert Dollar, in his paper, that we have had to work with might and main to build ships enough in a few months to carry our men to France, whereas with more equitable laws a sufficient merchant marine would have been on hand when war began. Similarly so drastic have been the laws that American shipping has been practically driven from the Pacific, so that Japan now has an absolute monopoly of shipping on that ocean and is in a position to direct foreign trade over it as best suits her

own interests. For these reasons urgent pleas were made for the repeal of the most obnoxious of these laws. That of Mr. Dollar's was one such plea. Another was made at the group meeting on Banking Facilities, over which he presided, by C. A. Hinsch, president of the American Bankers' Association, in which he said:

"We are in the midst of a shipbuilding program, which if carried forward to a logical conclusion will provide this nation with a tremendous fleet of ships, which will be of great benefit for and during the period of the war, in carrying supplies of all kinds to our boys at the front and to our allies, but unless our laws are changed, what is to become of this splendid fleet at the termination of the war? The La Follette Bill, known as the Seaman's Act, should be eliminated from our statute books, and a government subsidy in some form should be provided which will place the shipping of this country on a basis which will enable it to compete successfully with the shipping of other nations. Never again should we be placed in the embarrassing position in which we found ourselves when ships flying the flags of other countries were commandeered by those nations to carry supplies needed by them for the successful prosecution of the war, thus leaving us completely stranded and at the mercy of other nations for the transportation of our products to all parts of the world. There is no time like the present to take an inven-

tory of our needs, and to proceed at once to place ourselves in an impregnable position so that we can hope to compete successfully with other nations when peace shall be re-established."

Particular attention was paid by several speakers to the urgent necessity of making plans now for foreign trade after the war, and in every case their arguments met with the most hearty approval. It was shown how England, France, Canada, Japan and Germany were already laying their plans despite the tremendous demands upon them for war-time work. The argument was made that we must similarly prepare. The great sums of money that we have sent abroad, the fact that we are now a creditor instead of a debtor nation, the enormous increase in our factory production, far beyond our peace time needs, and the urgent demands that will be made upon us for the materials of reconstruction leave no doubt that we are going to have an export trade of great volume or of the great necessity of preparing now to expand and maintain that trade. The steps that England, France,



James A. Farrell

President of the United States Steel Corporation and Chairman
of the National Foreign Trade Council

Japan and Germany are taking similarly to prepare for trade after the war leave no doubt that we are only going to hold our export trade against keen competition.

"At this critical time," said Mr. Hinsch, "a great many people do not see the necessity or desirability of discussing the subject of foreign trade, but there is an old adage that 'in time of peace prepare for war,' and I think we can, therefore, very properly reverse the saying, and 'in time of war prepare for peace.'"

"This struggle has already been instrumental in bringing us to a full sense of realization of our inefficient, haphazard methods of doing business. If we would profit by our own experience, we should begin now to prepare for the struggle for commercial supremacy that will obtain when peace shall have been re-established in this troubled world."

Another important and similar aspect of this necessity of preparing now was brought by M. A. Oudin of the General Electric Company, speaking at one of the general sessions on "American Economic Interests in the Asiatic East." He said:

"In the United States there is a disposition to push aside all problems except the vitally important one of how to win the war. We are confident of the unselfishness of our motives and the disinterestedness of our aims. But no one can predict how far these policies and these principles will prevail at the peace conference. These principles must be backed up by more than a conviction on our part of their high moral character, by more than powerful naval and military forces. We will invite embarrassment if we do not take stock of our economic and industrial and of our agricultural and mineral resources. We will court disaster if we unduly delay taking the necessary constructive measures for the improvement of our economic position. It is certain that at the peace table a knowledge of the exact state of our resources and those of our Allies and the possession of a strongly fortified economic position will be trump cards. They will help us secure a better peace for ourselves and for the world, in which our role is that of a leader of democratic peoples."

General Sessions

The great importance that is being placed on foreign trade by the business men of America today is evidenced by the attendance at the convention of the representative leaders of American industry. Those who took part in the convention's deliberations included the leaders of all branches of American business, and despite the fact that so many of our industrial captains are now busily engaged on war work, the Fifth National Foreign Trade Convention was the best attended and most successful yet held.

The first session of the great meeting was called to order Tuesday morning, April 18, at the Hotel Gibson. The chairman of the Council is James A. Farrell, president of the United States Steel Corporation. Mr. Farrell attended all of the three days' sessions, but the work of presiding over the meeting was in charge of E. A. S. Clarke, president of the Lackawanna Steel Company, who was later assisted by George Ed. Smith, president of the Royal Typewriter Company, and head of the American Manufacturers' Export Association. O. K. Davis, secretary of the National Foreign Trade Council, was secretary of the convention.

The sessions of the convention were divided into three general sessions and eight group sessions, the latter to discuss particular problems of export trade. At the opening general session there were presented nine reports, detailing the war contributions of various factors of foreign trade. These papers were given by men high up in their respective industries and included reports on textiles, lumber, chemicals, automobiles, finance, metals, oil, agriculture and coal.

The second general session was devoted almost entirely to the activities of two government bodies—the Bureau of Foreign and Domestic Commerce and the War Trade Board. Burwell S. Cutler, chief of the Bureau, read a paper on

"American and Foreign Government Trade Encouragement Agencies," and another paper following detailed the trade promotion work of the consular service.

The work of the War Trade Board was explained in an exceedingly well received paper by Thomas L. Chadbourne, counselor to the War Trade Board, who was followed by three department chiefs of the Board, who explained the work respectively of the Contraband Committee, the Bureau of Exports and the Bureau of Imports. The meeting was enlivened by a period following in which the three department chiefs were called upon to answer questions concerning the work of the Board in licensing imports and exports.

The topic of the third general session, Friday morning was "The American Merchant Marine." Papers were presented on "The Relation of Inland Water Ways to the Development of Foreign Trade," by Walter Parker, general manager of the New Orleans Chamber of Commerce; on "American Economic Interests in the Asiatic East," by M. A. Oudin of the General Electric Company; on "Trade Follows the Flag," by Frank Waterhouse of Frank Waterhouse & Co., Seattle; on the "Development of an American System of Marine Insurance," by Hendon Chubb of Chubb & Son, New York. Robert Dollar was unable to attend but an able paper written by him was read by the secretary.

Group Sessions

The group sessions, four of which were held Thursday evening and four Friday afternoon, saw the presentation of several interesting papers.

Group I directed its attention to Banking Facilities for Foreign Trade and Investment. Several interesting papers were presented, that of Mr. Hinsch, who presided, having already been mentioned above.

Group II, dealing with Initiatory Problems in Foreign Trade, had as the feature of its meeting, the discussion by several members on "What Beginning in Foreign Trade Can Be Made with \$10,000, and How?" Some interesting facts were also brought out by the chairman, who, in opening the meeting, brought out some general suggestions with reference to foreign trade. He pointed out that it was necessary; first, to know the markets; second, to know the people; third, to know the seasons in foreign countries; fourth, to differentiate between different sections of comparatively large countries; and fifth, to know the language of the country to which it is desired to export.

Group III was devoted to Commercial Education for Foreign Trade.

Group IV's problem was Co-operation in Foreign Trade. Reviews of the systems to be inaugurated in Great Britain and Germany for foreign trade after the war aroused the members present to the character of the competition that the United States exporters will have to meet in the struggle for the world's commercial supremacy. Papers, prepared by officials of the Bureau of Foreign and Domestic Commerce, on German and British organization, plainly indicated the care and attention which those countries have given to this matter.

In Germany there may be mandatory monopoly—government or otherwise; in England, co-operation which will perhaps be under governmental supervision and urged by the government. In this country we have no definite policy as yet.

The need for co-operation in foreign trade and of a concerted plan of action on the part of the exporters of this country in enlarging foreign trade activities, was strongly emphasized.

A great part of the discussion followed the suggestion as to the practical organization of an export association under the Webb-Pomerene Bill. A number of inquiries were made as to certain provisions of the bill, and much light was thrown on the probable working of this measure.

Group V dealt with Foreign Credits and Credit Informa-

tion and was held in co-operation with the National Association of Credit Men.

Group VI, held in co-operation with the American Manufacturers' Export Association, took up the Problems of the Smaller Manufacturer and Merchant.

After a thorough discussion of the export situation now and after the war, the session addressed itself in particular to a consideration of several of its more important phases. Attention was called to the difficulty of building up a successful overseas trade without extending to foreign purchasers the long-time credit to which they are accustomed, and the difficulty of obtaining accurate credit information through foreign sources.

Group VII, which discussed Pacific Overseas Trade Extension was brought sharply up against the replacement of American and other shipping on the Pacific by vessels under the Japanese flag.

The discussion of this subject brought out the fact that the steamship which transports products across the ocean very largely controls the commodity, not only while it is in its custody as freight but from its point of origin to its ultimate destination, and that it dictates who shall buy and who shall sell. And the ocean lines in the Pacific being principally in the hands of the Japanese, it has come to pass that the Japanese buy our cotton, for example at interior points in the South, and sell it to the user in Japan. They are thus doing the business that a few years ago was done by American commercial houses located in this country through their branches in foreign lands.

The only remedy for this situation lies in the maintenance of a substantial fleet of steamers operated under the American flag. Now the situation (prospectively at least) has changed. The United States will find itself possessed at the close of the war of a large fleet of merchant steamers, and the suggestion was made that the government retain that ownership and lease the ships to its citizens under the Government form of time charter.

Another of the features of Group VII was an able paper by Frank Rhea on "Transportation Facilities in the Far East." A detailed abstract of this paper will appear in an early issue of the *Railway Age*.

Group VIII dealt with Latin American Trade Relations. One of the best papers presented at this group meeting was by Robert H. Patchin of W. R. Grace & Co., on "Essential and Non-Essential Foreign Trade."

The Banquet

The feature of the entire convention, however, was the banquet held Friday evening. Over 900 were present, but the patriotic enthusiasm that was manifested for the remarks of the speakers would have done justice to twice that number. Taking their cue from L. A. Ault of Ault & Wiborg, Cincinnati, the toastmaster, the speakers directed their remarks to comment on the war with suggestions that a constructive plan for peace conditions should be in process of formation now. All laid stress on the necessity of a victorious peace and spoke against any compromise with those who had started the world conflagration.

Edward N. Hurley, who was to have been the leading speaker at the banquet, was unable to attend, but he sent the following telegram, which was read by Mr. Farrell:

"Please convey my sincere regret to the members of the National Foreign Trade Council that I am unable to be with them. I hoped until the last minute to be able to get away from Washington, but find now that it is impossible. I wanted to be with you because I knew that all of you are working for your country; that you are all helping the nation to win the war against Germany.

"In Washington we are all deep in this immediate task. We are so deep in it that some of us forget that if the righteous purposes of this war are to be achieved we must

fill our trade function in the future. America never again can return to the provincial attitude of the past. We have become a world leader in war, and we must maintain our world position in peace. The share of world commerce to which the United States aspires is that to which the resources, the skill, and the resourcefulness of our people entitle us in fair and friendly competition with the nations who are at once our customers, and our suppliers of materials and merchandise.

"We are building ships first and foremost for the war, but they will be useful for the future world trade as well. Remember that once their part in the winning of the war is ended a large number of them will be engaged in bringing back to home and industry the victorious soldiers, and in transporting to Europe the materials necessary for reconstruction of normal life freed from the menace of avaricious autocracy. These vessels will serve the commerce of other nations equally with our own, their facilitation of the trade of the world will be the corollary of the freedom of the seas we fight to assure. And if there are any men among you who doubt that we are going to have a vast fleet I will simply ask whether you have heard of a well-known man in our organization whose name is Charles M. Schwab."

To make up for Mr. Hurley's absence also extracts from another of his speeches showing the recent rapid progress of the shipbuilding program were read by another speaker.

The most important paper read at the banquet was that of Mr. Farrell, the chairman of the Council on "Foreign Trade Aspects." An abstract of this paper is given below.

The closing session of the convention was on Saturday morning. The feature of this session was the presentation of a Declaration of Principles, prepared by the general convention committee.

Foreign Trade Aspects

By James A. Farrell

Chairman National Foreign Trade Council; President United States Steel Corporation

When President Wilson declared that the freedom of the seas must be maintained and that the ocean-borne commerce of the United States must be allowed to be carried on without molestation, national recognition was given to the fact that our export and import trade was a controlling factor in our national existence. Then too, it quickly became obvious that the world was dependent as never before upon the products which we could send them. Exports which in any year prior to 1915 had not exceeded two and a half billion dollars, reached in 1916, before our entry into the war, an aggregate of four and one-third billions, while in 1917, notwithstanding the destruction of shipping and the reduced tonnage available for transport, they totaled nearly six billions three hundred millions of dollars.

Under the conditions that confronted this nation a year ago, it did not require a prophet to tell us that unless a comprehensive shipbuilding program should be adopted and pressed to completion at no distant date, our future participation in the commerce of the world would be negligible. It had, indeed, become patent, long before our entry into the war, that the future of our foreign commerce was indissolubly associated with the up-building of our mercantile marine. No discussions have figured more prominently at these Foreign Trade conventions during the past four years than those whose subject and motive have been the great question of American shipping. When the war has been won and a vast fleet of modern steamers return to the use of peaceful ocean commerce, the danger of our foreign trade being hampered by the lack of bottoms to carry it will have finally passed away.

But autonomous control of our foreign-going shipping is

only one of the requisites for the gaining and keeping of overseas commerce. By all the industrial nations of the world vast preparations are already being made for participation in the economic contest that will ensue for trade in the world's markets. There can hardly be a question that for a good many years after peace is restored the rehabilitation of the vast territory wasted by war, and the replacement in neutral countries of equipment which has necessarily suffered from deterioration while replacements have been impossible, will provide a large outlet for surplus production. Moreover, the creation of conditions hitherto non-existent of equal opportunity for international commerce and industrial enterprise, should so quicken the world's demand for manufactured products as to insure a long period of industrial prosperity.

America, it may be hoped, will maintain the position of offering to the world all its requirements which can be supplied here, on terms and conditions that are fair and just. There is no evidence now of any intention to take undue advantage of our economic and productive strength, and we shall in the future be as little disposed to turn to personal profits the necessities of a war-worn world, or the exceptional influence of our position as exporters and importers. The sacrifices that are being cheerfully endured today by men engaged in foreign commerce in the necessary curtailment of their business through the conservation of shipping, are an earnest of the elevation of method and of purpose which will control the conduct of our external trade in the near future. Now that Congress has at last recognized the necessity of legalizing combinations for export trade, the field ought to be open for the participation of hundreds of small manufacturers who have not hitherto been able to enter it. One of the greatest of after-war problems must be the employment of surplus labor and the utilization of the surplus products of industry. Organizations should be perfected in every line of American production seeking foreign trade so that no matter to what extent they may desire to co-operate under the provisions of the Webb-Pomerene law, they may at least co-operate to the fullest extent in securing information respecting foreign conditions and competition, in regard to the demand for our products abroad and the proper utilization in import and export trade alike of our enlarged merchant marine.

At the present moment, our foreign trade, both export and import, is inevitably restricted by the scarcity of steamers available for service other than that of transporting our armies to France and of keeping them and our Allies supplied with necessary food and munitions. This condition is likely to continue until the additional tonnage under construction becomes available. There are, however, certain commodities, procurable only from overseas countries, which are essential to the successful prosecution of the war. We constantly need as raw materials in our manufactures and particularly for the production in sufficient volume of munitions, as well as for the consumption of our own people, replacing domestic products which we send to our Allies: Meat, rubber, coffee, cocoa, hides and manganese ore from Brazil; wool, meat, hides and wheat from Argentina; copper, cotton (of the long stapled variety) and sugar from Peru; copper, tin and rubber from Bolivia, nitrates, copper, wolfram, tungsten and other ores from Chile; tin and rubber from the Malay peninsula; jute and jute bags from India, and this by no means exhausts the category. Such is the usual urgency of our need of these commodities, or most of them, that the government must provide, to the extent permitted by the other requirements of the war, steamers for the purpose of importing them. The possible export trade with the countries from which these products must come is, therefore, at present limited to the available space on such steamers as the government may be able to provide for the import trade, and until such time as new tonnage

becomes available, there can be no increase or expansion of our export trade with these markets.

We Should Prepare

In the meantime there is obvious necessity that we should prepare against the time when the present restrictions have been removed and adequate transportation facilities are again available. With our enormously increased capacity in manufactures, and the natural products of the mines, farms and forests, we shall have to spare, added to the necessity for the employment of our merchant marine which should amount by the end of next year to at least ten million tons of shipping, we shall be urgently in need of foreign markets. Our European competitors, past and future, notwithstanding the tremendous demands upon their energies and resources which the prosecution of the war involves, are not neglecting to prepare for the foreign trade of a time of peace. It is said that Germany has already taken steps, in the building of a new merchant marine, to render herself independent of the shipping of foreign countries, even though she should find herself at the end of the war bereft of that large part of her fleet which was interned in foreign ports. It is certain that the German organization of banks and mercantile houses which, before the war, was co-extensive with the world, is still practically intact in South America and other markets in which we are particularly interested. We may reasonably expect that to the extent she is able to recover, be it soon or late, her trade connections and to repair the diminished man power, Germany will be as potent a competitor for the markets of the world as she was before.

One imperative duty of gatherings like this is therefore to impress upon the people of the United States the immediate necessity of mobilizing their surplus resources as a preparation for the demands of the foreign trade of the immediate future. It may well be that after the war has been brought to a successful termination, we may be able to speak in terms of co-operation, on the broadest and most generous scale, with the manufacturers and producers of our present Allies, rather than in terms of keen competition. But effective co-operation can be rendered only if we have first organized among ourselves a co-operative system of foreign commerce.

It is reasonable to expect that with a secure peace established among nations divested equally of the power and the desire to make war on each other, great world enterprises will be undertaken under the stimulus of international combinations of capital, and of a common surplus of materials available for improvement and reconstruction. No longer should it be the case in future years, when it may become possible for us to lend financial aid to the present neutral countries of the world for the development of their enterprises, that America should withhold its proper participation and expect the European countries to carry the entire load of foreign financing. Neither would it seem just or equitable, should we emerge from this war with sufficient surplus capital to warrant generous investment in foreign enterprises, that we should selfishly disregard the claims of our present allies to that participation in such financing which insures an adequate share of resulting trade.

Whatever may be the eventual terms of peace, one conclusion would seem to be reasonably certain: We and our allies will have sacrificed our blood and treasure in vain if we have not succeeded in insuring hereafter conditions of peace under which we shall be free to carry on our domestic and foreign commerce without the fear of military dictation or aggression.

VENEZUELA IMPORTED RAILWAY MATERIALS in the six months from January to June, 1917, to the value of \$424,073.—*Commerce Reports*.

Modern Versus Standardized Railway Equipment

Provide Standard Equipment Only for an Emergency Fleet;
Speed Up Repair and Improvement Work

By J. E. Muhlfeld

IN YOUR APRIL 12 ISSUE you request an expression of views on the adoption of complete standard types of locomotives for all the railroads in this country.

At this time when we are waging a war of the transportation of tonnage against tonnage of men, munitions and supplies for the massing and protection of the battle fronts, it is well to carefully consider just how far the government and the railroads can safely go in a policy as yet untried by any country in the world, without the risk of failure.

Why should the mechanism of mobile power used as a means of transportation, such as water and air ships and locomotives, be selected for complete standardization and its progressive development throttled, any more than that of the automobile, stationary power plant and the machinery of industries which produce foodstuffs, wearing apparel, building materials and the other living necessities, all of which are dependent upon rail and water transportation for their distribution?

Had the mechanism essential to wire and wireless telegraph and telephone, lighting, heating, mining, agricultural and industrial equipment been standardized ten or even five years ago in what condition would the United States be today to combat Germany's machine power? And what would be the present state of the art of the automobile and auto truck had standardization been inaugurated even three years ago?

Cheap wood, coal, gas and oil have made us prodigal in the use and utilization of the energy generated by our natural fuel resources for transportation and industrial purposes, but this condition has now changed. The fuel bill has almost doubled itself during the past year; wood and gas are practically unavailable; oil is going, and coal will annually become of average poorer quality and higher cost. With either steam or electric locomotives converting only from 4 to 7 per cent of the heat value in the fuel into effective work at the track rail, how can we expect to keep pace with the economics of the situation without the daily development of the railway prime mover, particularly in this country where it consumes about one-third of all the coal produced?

Railway equipment orders have not kept pace with the locomotives and cars put out of service on account of obsolescence and inadequacy, to say nothing of meeting the requirements of expansion and increased business. This applies principally to locomotives and freight cars, as while those newly built have been of progressively greater capacity than the existing equipment, that factor has not been sufficient to meet the requirements, and *modernized freight locomotives and cars* must be provided as rapidly as the railway shops can repair and the builders can produce them if the war plans of the government are to be carried out expeditiously.

Would not the adoption of a single government standard Mikado type locomotive and box, coal, passenger, postal and baggage and express car—or a total of six (6) standard pieces of railway equipment—for the purpose of providing an "Emergency Fleet" of equipment for such distribution and diversion as the seasonal traffic and other abnormal conditions require on each railroad be the most feasible plan for government standard equipment? Then by per-

mitting the various railway lines and systems to order the most modern design that they have in use, or for which the builders now have the necessary drawings, patterns, formers, dies and other shop equipment for their construction, and for which the railways have the necessary shop and engine-house equipment for their maintenance and handling, for their normal traffic requirements, the local conditions could be most successfully met with the least confusion, the properties could be continued in operation on the most effective and economical working and up-keep basis, the greatest productive capacity of the builders' plants could be obtained with the least cost for the output, and the time and waste in construction and maintenance, as well as the railway capital and operating expense, would be substantially reduced.

However, at the moment, there are many other factors beside the complete standardization of the various types of locomotives as units that must be given prompt consideration if a repetition of the past four months' rail traffic condition is to be avoided, as the immediate necessity is for *modernized production, maintenance and operation* of both *existing* as well as *new equipment*, rather than standardization, all of which can best be brought about by:

First.—Appropriations and authority for speeding general repair and modernization work on existing equipment at railway shops.

Second.—Appropriations and authority for producing maximum output from builders' plants of new locomotives from existing designs, patterns, templets, formers, dies, jigs and shop equipment.

Third.—Authority for the use of the regional materials most readily available and for such distribution of the orders for materials and devices entering into locomotive and car construction, renewals and repairs, that the capacity of the largest number of producing concerns will be utilized to the fullest extent.

Fourth.—An emergency fleet of a single modern design of government standard locomotive, box car and coal car suitable for any trunk line carrier which can be most expeditiously produced by the builders in the largest quantities, with the least lost motion and waste from the most readily available and suitable materials and appliances, for distribution to those lines requiring assistance during abnormal traffic, maintenance or operating conditions.

Fifth.—An adequate supply of repair and renewal parts for the government standard equipment for the railways on which they will be operated.

Sixth.—Adequate and suitable locomotive and car handling, supplying, inspection and repair facilities.

Seventh.—Single, double and swing crew all locomotives practicable and provide for less arduous labor and greater convenience, cleanliness and comfort in their operation for engineers and firemen.

Eighth.—Provision for equitable compensation, stock ownership in property, fair and full adjustment of grievances, and for proper standards of working, living, education and saving for employees.

Ninth.—Improvement in fuel and water supply and in equipment and methods for utilization for the purpose of eliminating avoidable delays, waste and expense.

Tenth.—Elimination of divided responsibility by concentrating authoritative direction, other than for the govern-

ment standard equipment designs, of the mechanical design, operation and maintenance of locomotives and cars in a vice-president in direct charge of both the locomotive and car departments on each railroad.

Alba B. Johnson, president, and Grafton Greenough, vice-president, of the Baldwin Locomotive Works, in their recent papers before the United States Chamber of Commerce and the Western Railway Club, respectively, have not only set forth the probable consensus of opinion of the officials of one of the largest locomotive building plants in the country, but also that of many other builders and railways with respect to standardization. Of the many reasons stated by them for and against complete locomotive standardization, the advantages are greatly overbalanced by the disadvantages.

The complete standardization of locomotives as applied to 500 or 1,000 mile regional units of railway may be consistent, successful and economical so long as progress is not retarded. The Virginian Railway—practically new built and equipped during recent years from the Atlantic tidewater to the West Virginia coal mines—had an ideal opportunity, and as I understand it, attempted to standardize locomotives and cars. A report as to what has actually been accomplished in that direction and the reasons therefor, would be most interesting.

As applied to any considerable mileage which involves different bridge limitations, tunnel clearances, track strength, gradient, alignment, climatic, fuel, water, labor, enginehouse, shop, length of run, train loading, passing track, divisional and terminal yard and other operating conditions, complete locomotive standardization is not consistent for the most effective and economical transportation or maintenance results, and standardization must then be limited to the interchangeability of the maximum number of detailed repair and renewal parts. The Harriman lines undertook the complete standardization of locomotives and cars in the most serious and drastic manner that this problem has ever been attacked in the United States, but soon found it necessary to deviate from the adopted complete unit standards and confine their practice to the interchangeability of detailed parts, or otherwise assume the burden of increased transportation and maintenance costs.

On the 120,000 miles of government, and 100,000 miles of privately owned or controlled steam railways in Europe no scheme of complete locomotive standardization has as yet been worked out. This applies as well to Canada, Australia, Brazil, Argentine and other countries where the steam roads are both state and privately owned or controlled.

Locomotives and cars for steam railways are usually a combination of the results of specialized invention, designing and development of types, materials and appliances that have been found to best meet the requirements of progress and to be most adaptable for the various needs, local requirements and conditions, and so long as advancement and progress along mechanical and operating lines is to be made, this same process in the development and building of motive power and cars must be followed out.

The factors of waste in construction and haulage of unnecessary material as compared with the use of locomotive types and designs best suited to the local height, width, length and weight limitations must certainly not be overlooked, as one of the most severe, and in many cases just, criticisms to which steam railway equipment designers have been subjected in recent years is that of too great a percentage of non-productive as compared with total weight. For example, why should Pacific or Mikado types of locomotives be used when Ten-Wheel and Consolidation types, respectively, would be more suitable?

While the first cost of the most modern, effective and economical designs of new equipment may be somewhat higher than that of less modern suitable equipment, the results from a railway operating and maintenance standpoint will many times over justify the increased cost for

the interest on the investment. In fact, the lesser depreciation for obsolescence and inadequacy will, in itself, more than make up the difference in the fixed charge. Therefore, the logical way to purchase new equipment is to disregard the item of first cost so long as extravagance is eliminated, and give due consideration to those factors that will best meet the requirements from an operating standpoint and give the greatest average effectiveness and economy for its entire life. Furthermore, if the builders, or rather the assemblers of the detailed designs, materials and devices are to provide for the greatest possible production it is essential that the parts entering into each completed piece of equipment shall be distributed among the greatest number of manufacturers practicable in order that the erecting capacity of the plants can be fully utilized.

If the traffic offering is to be moved safely and expeditiously and the operation is to be performed with any degree of economy, the railway situation must be improved, whether by an increase in rates, or by taxation or by both, and railway credit is government credit.

With the "transportation expense" making up about 55 per cent, a "maintenance of equipment" 25 per cent, "maintenance of way" 15 per cent, and "traffic and general" 5 per cent of the total United States railway operating expense, and with taxes equal to about 8 per cent of this total in addition, it is easy to recognize the importance of a high average revenue trainload if the railways are to meet with any degree of success in moving the traffic now offering with the existing facilities and at the present rates. During the last 10 years the average revenue freight trainload has increased about 40 per cent, and during the past 20 years it has increased about 140 per cent, while the revenue per passenger and ton mile has gradually decreased. Had locomotives been standardized such a record would have been impossible.

The Pacific, Mikado, Mountain, Santa Fe and Mallet types of locomotives, which make up 10 of the 12 proposed government standards, have all been originated and developed in the United States during the past 15 years, and many of these have had to undergo continued change in detailed equipment to maintain them in a modernized and effective condition for operation. This applies particularly to those devices that affect the work of the locomotive engineers and firemen who are certainly entitled to the results of progress in the way of developing practical improvements, and to as much, if not more, consideration in this regard as stationery power plant operators. The necessity for hazardous and arduous manual labor in the operation of steam locomotives can and should be substantially reduced, and while a great deal has been accomplished in this direction during the past 15 years, much more remains to be done.

As the relation between cost, weight and tractive power of locomotives is practically constant, the measuring stick to determine relatively what they are accomplishing in repayment for the money, labor and material that has gone towards their creation and maintenance, is available hauling capacity. It is a lamentable fact that the locomotives of the United States as a whole have depreciated in the revenue tons hauled one mile per pound of tractive power available, largely due to insufficient maintenance, modernization and mileage, all of which demands that adequate appropriations and authority for equipment repair and improvement work and maintenance of facilities shall be provided. The fact that the direct maintenance and operation of locomotives and cars makes up about one-half of the total railway operating expense justifies that each item pertaining to equipment upkeep and working shall be given full consideration and attention.

The practice of transferring other than the "emergency fleet" locomotives from one railway division, operating district, or shop to another must be avoided if the disadvantages resulting from different rail, fuel, water, engine-crew and like factors are to be minimized and the interest of the men responsible for their safe, effective and economical upkeep

and working is to be maintained. Furthermore, provision must now be made so that all possible locomotives will be in first-class condition for next winter's use, and as a proper safeguard, every existing and new locomotive as it is turned out of the shop, and can be spared from service, should be stored until that time.

Railway operating expenses, due to a combination of traffic, weather and physical conditions, have, during the

past few months, brought about heavy reduction in net revenues and in many cases operating expenses have not been earned. As the general and traffic expenses offer negligible opportunities for large savings, and maintenance must be increased, transportation expense, which represents about 55 per cent of the total, must be looked to for improvement through increased train and carloads and reduced fuel, water and non-productive costs.

Doings of the United States Railroad Administration

The Week Has Been a Notable One Because of Many Important Developments Which Have Taken Place

WASHINGTON, D. C.

Negotiations on Contract for Railroad Compensation

IN ACCORDANCE WITH THE PROVISIONS of the federal railroad control act of March 21, a committee representing the government, headed by John Barton Payne, general counsel of the Railroad Administration, and a committee representing the railways, headed by Alfred P. Thom, general counsel of the Railway Executives' Advisory Committee, have had several conferences respecting the agreement which the act provides the President may make with the railways for the compensation for the use of their property during the period of federal control. At these conferences various phases of the act and of the form which the agreement shall take have been under consideration. The general conditions which are to govern the agreement are provided in the act, but the entire subject is of such great importance, and there are so many complicated questions involved in the proposed terms of the contract, that the negotiations have been protracted and are likely to continue for some time before settlement is reached.

At the outset each side prepared and submitted a tentative draft of a standard form of contract intended to take care of a majority of the cases involved. Naturally, the original drafts were rather far apart as to some of the details of the provisions included, and to some extent as to fundamental principles, but as the conferences have progressed both drafts have been extensively modified.

One question under consideration is whether the certificate of the Interstate Commerce Commission as to the amount of the just compensation which the companies are to receive shall be absolute or whether the commission shall reserve the right to change the amount either in favor of the government or of the railways, provided on further examination of the reports of the companies it shall be found that wrong computations have been made or reports have not been made, either by mistake or otherwise, in strict compliance with the classification and rules of accounting of the commission. There are so many companies involved that if these certificates have to await the re-examination of all the reports it would be some time before the commission could safely certify the amount of the compensation which each company should receive under the act, and it is quite probable that an agreement will be reached reserving to the commission the right to make such corrections as are necessary.

Another subject as to which a great deal of consideration has been given involves the question as to what deductions are to be made from the just compensation, allowed any company, to reimburse the United States for the cost of any additions and betterments made to the property, which are considered not justly chargeable to the United States. Under the act the government is required to return the railroads in substantially as good repair and in substantially as complete equipment at the end of the period of federal control

as they were in the beginning, and in maintaining the property up to the required standard it is probable that in some cases the government will be obliged to expend money for certain additions and improvements, and such part of the cost thereof as is not considered properly chargeable to the government, but properly to be borne by the company, may be deducted from the compensation before the payment of any installment thereon. This problem involves particularly the case of a road having deferred maintenance according to its own standards, as in such case the net income of the road will have been increased by the amount which it failed to put into adequate maintenance.

Another question involves the rate of interest which should be allowed to any company in case any part of the annual compensation over and above what is necessary to pay interest charges, federal taxes, rentals, corporate expenses and the rate of dividends which had been paid during the three years ended June 30, 1917, is used by the government in making additions, improvements, road extensions, terminal improvements, etc., during the period of federal control. The act provides that the President may allow such reasonable rate of interest on the amount so expended as in his judgment may seem proper. There is also involved the question of expenditures for so-called non-productive improvements which do not add to the earning capacity.

There has been a proposal that the government should pay interest on the cost of additions or improvements made on order of the director general only up to a point not exceeding a certain percentage of the net income, which should be taken as representing the amount fairly to be devoted to non-productive improvements, and 15 per cent has been tentatively suggested.

A great deal of consideration has been given to the exact statement of what shall be charged to the corporate expenses. It is expected that the government will agree on the basis of compensation which will be sufficient to cover necessary interest, federal taxes, dividends and the corporate expenditures necessary to maintain the existence of the corporation, but that investments in non-operating property shall not be deemed proper corporate expenses unless approved by the President.

It has also been proposed that the government shall take care of the usual losses, such as those incident to fires and floods, but that an exception shall be made so that the government will not be held responsible for the results of extraordinary losses, such as would result from an earthquake, a great fire or an invasion.

There have been other questions of lesser importance respecting what shall be treated as a compliance by the government with its obligation to maintain the property during the period of federal control so that it may be returned to the carrier at the end of federal control in substantially as

good condition as when it was taken. This involves the question of depreciation charges and how they shall be made, reserve funds, etc. It is thought that if any controversy arises at any time between any railway company and the government as to whether this maintenance is being properly done, the question of fact may be referred to the Interstate Commerce Commission for investigation and decision. There are other questions arising from the adjustment of overlapping accounts which existed at the beginning of the period of federal control, and which will occur at the end of the period when the roads are turned back to their owners.

The latest form of the tentative draft of the contract as proposed by the government, and after many modifications had been made as a result of the discussion, is dated April 23. It contains a preamble and recitals of the fact that the government has taken over the railroads, etc., eight sections on alterations, definitions, controversies, etc.; property taken over; acceptance; accounts during federal control; upkeep; taxes; compensation; and final accounting, and forms for the execution of the contract, call for the stockholders' meeting to ratify the agreement and a certificate of the stockholders' vote.

Section one provides that the provisions of the agreement may be altered, amended or added to, but only by an instrument in writing signed by the director general and by some officer of the company duly authorized by the directors. It is also provided that in case of questions arising as to the interpretation of provisions of the agreement, the matter shall be referred upon application either of the director general or of the company, to the Interstate Commerce Commission.

In the section regarding accounts during federal control it is provided that "all salaries and expenditures incurred by the company during federal control for purposes which are incidental to the existence and maintenance of the corporation, or which are connected with any property of the company not taken over by the President, or which are connected with negotiations, contracts, valuations, or any business or controversy with the government or any branch thereof, and which are not specifically authorized by the director general, shall be paid by the company; except that all engineering, land and accounting expenses connected with the valuation now being carried on by the company in cooperation with the valuation bureau of the commission shall be paid by the director general and charged to railway operating expense, to the extent that said expenses are in the opinion of the commission necessary for the purpose."

Section 5 provides that the director shall provide for the maintenance of the property in order that it may be returned in substantially as good repair and complete equipment as on January 1, 1918, and that an annual expenditure for such purposes of an amount equal, subject to certain allowances, to the average annual expenditure for such purposes during the test period shall be taken as a full compliance with this covenant. In comparing the amounts expended with those expended during the test period, due allowance shall be made for any difference that may exist between the price of labor and materials and between the amount of property operated during federal control and the average for the test period, so that the comparison may be reduced as nearly as may be to a basis of relative physical repair. The company shall have the right to inspect its property at all reasonable times during federal control.

One of the most important features of the proposed contract is the section relating to compensation. This, it is provided, shall be paid to the company quarterly on the first days of April, July, October and January, except that the first installment shall be due upon the execution of the agreement and shall include all prior installments then unpaid, but from each installment there shall be deducted such

amount as may then be due for excess payments or credits made by the director general for maintenance, repairs, renewals and depreciation. The net quarterly compensation, together with the company's other income, shall be applied by the company to sinking fund payments as may be required by any contract in force December 31, 1917, such as for leased roads and properties, interest, taxes and assessments payable by the company, dividends lawfully payable under the federal control act, and such sums as may be reasonably necessary to support the company's corporate organization or to carry out the lawful corporate purposes of the company.

It is provided, however, that no part of such compensation or income shall be invested without the approval of the director general and the balance of the compensation and other income shall be used to pay the cost of such additions, betterments and extensions as shall be made to the property of the company during federal control with the approval or by the order of the director general. During federal control the company shall not, without the approval of the director general, issue securities or make or take any lease of any railroad or system of transportation or enter into any contracts or agree to pay any larger amount of interest on its debt or for the rent of leased roads and property or for dividends on its stock than the amounts payable as of December 31, 1917. On additions, betterments and extensions made by the company interest shall be paid at rates fixed by the director general and on additions, betterments and extensions made by order or approval of the director general out of the fixed compensation or other income interested shall be paid the company at such rate, not exceeding 3 per cent, as the director general shall fix.

Universal Interline Way-billing

The director general has issued General Order No. 21 prescribing Simplified Bases for Apportioning Inter-road Freight Revenues to Carriers Performing the Service, as follows:

(1) Pursuant to the provisions of paragraph 13 of General Order No. 11, dated March 16, 1918, with respect to the adoption of universal interline waybilling, the following regulations will be observed beginning with the May, 1918, accounts in apportioning freight revenues to individual carriers subject to federal control which perform inter-road freight service.

(2) In cases where interline billing has been in effect covering all or a major portion of freight traffic interchanged between two or more carriers via the same route, although the interline waybill may not cover the movement from origin to final destination of the traffic:

(a) The waybill destination carrier shall determine, from interline division statements for the period of twelve months ended December 31, 1917, the aggregate freight revenue on interline freight traffic from each initial way-billing carrier separately via each route. There shall likewise be determined the amount apportioned to each individual carrier separately via each route. There shall be included in such aggregate freight revenue, and in the amounts due to each carrier, as their interests may appear, terminal allowances, bridge tolls, lighterage, insurance, and other arbitraries. If the interline method of accounting became effective via any route subsequent to January 1, 1917, the division statements for the longest period obtainable (not exceeding twelve months) prior to May 1, 1918, shall be used.

(b) From the aggregate freight revenue, and the revenue due to each carrier via each route, ascertained in the manner prescribed in the preceding paragraph, the ratio of the revenue allotted to each carrier via each route to the total revenue shall be determined and stated in two figure

percents; such percents shall be designated as "road to road" percents. The percents thus determined for each route shall be used for apportioning the revenue from the traffic moving over it on interline waybills to be accounted for beginning with May, 1918, accounts, until and unless otherwise ordered.

(c) When the accounts for commodities moving in large volumes, such as coal, have, as a matter of general practice, been kept separately, separate road to road percents, based on revenues from that class of traffic, may be determined as above prescribed and used in apportioning the revenues therefrom.

(3) In cases where interline waybilling has not been in effect or where it has been applied to only a small part of the traffic moved between two or more carriers via the same route:

(d) Destination carriers of the freight shall apportion and settle the revenues on interline waybills to be accounted for in May, 1918, accounts on bases of established divisions. From the totals of proportions thus settled, destination carriers shall compute two figure percents for traffic from each initial carrier via each route. Such percents are herein designated as "road to road" percents and shall be used thereafter to apportion revenues via such roads and routes respectively, on that class of traffic unless and until otherwise ordered. When traffic moves only in small volume, destination carriers may compute two figure station to station percents based on revenues produced by the application of established division bases, and use such station to station percents instead of the road to road percents.

(e) In the event freight traffic moves during the month of June, 1918, or thereafter via routes over which there were no freight movements covered by interline waybills prior thereto, destination carriers shall apply the established divisions in apportioning the revenue on such shipments during the month in which the traffic first moves. Thereafter, the revenue on such traffic shall be divided on either road to road or station to station percents as may be applicable.

(f) When the accounts for commodities moving in large volumes, such as coal, have, as a matter of general practice, been kept separately, separate road to road percents based on revenues from that class of traffic may be determined as herein prescribed and used in apportioning the revenues therefrom.

(4) In cases where freight traffic moves via unusual or diverted routes over which no divisions apply and via which no experience can be obtained, destination carriers shall apportion the revenues therefrom on a twenty mile block mileage basis, each carrier to be allowed at least twenty miles and originating and terminal carriers an additional twenty miles each as constructive mileage.

(5) The formulae prescribed herein for apportioning interline freight revenues to carriers performing the service, are intended to preserve, as equitably as practicable, the integrity of the revenues of individual carriers, and their use shall be generally observed. If by reason of new traffic developments, or the abnormal shifting of traffic, the continued application of the road to road percents herein provided for might seriously distort the revenues of interested carriers, the destination carrier may, upon its own initiative or by request, test apportionment of revenues for a specific month or period by applying the established division bases thereto. If results thus obtained vary substantially from the results obtained by the application of road to road percents as herein provided for, and the change appears to be permanent, application may be made to the Director of Public Service and Accounting to adjust the divisions to such bases as will produce more equitable results. Applications for changed apportionment bases based upon ordinary traffic fluctuations will not be considered.

Modification of Practices in Accounting for Freight and Related Revenues:

(6) Destination carriers shall completely revise waybills as to rates, classifications, extensions, footings, weights, etc., thus insuring the correctness of the revenues based on tariffs applicable, and they shall account to interested carriers for their respective proportions of such revenues in the manner hereinbefore prescribed. If flagrant or continued use of erroneous rates or classifications be observed by destination carriers, the attention of billing carriers must be specially called thereto. Where ordinary changes or corrections are made in waybilled revenue by destination agents, correction notices need not be made to intermediate or originating carriers, unless advances or prepaid charges be involved.

(7) Paragraph 10 of General Order No. 11 provides that settlements by destination carriers with all other interested carriers shall be accepted as final. This provision discontinues the adjustment among carriers of overcharges and undercharges in revenue, but does not prohibit the adjustment of differences in advances and prepaid items; clerical errors, in addition and divisions, or errors due to omissions, diversions, etc.

(8) Effective at once no apportionment shall be made among carriers of charges absorbed, such as switching, elevation, transfer charges, terminal delivery charges, icing, cost of grain and coal doors and other similar items accruing during federal control; such absorbed charges shall be borne by paying carrier.

The order also includes the following modifications and interpretations of General Order No. 11:

(9) Paragraph 11 of General Order No. 11 prescribes certain forms to be used in preparing Audit Office settlement accounts. Until further ordered, carriers may use such prescribed forms, or they may use those now in use by them in settlement of interline freight accounts until such time as a more complete study is made of the forms which will later be prescribed.

(10) Sub-paragraph b, of Paragraph 8 of General Order No. 11, provides that: "Only the original and one copy of the waybill shall be made." This provision is hereby amended to the extent of permitting carriers taking such additional copies of waybills as may be necessary to maintain the integrity of the accounts. The first copy must be printed in the same form as the original, but may be on a lighter weight of paper. Any additional copies beyond the first may be prepared on blank paper.

(11) While Paragraph 8 of General Order No. 11 provides for a standard form of waybill, such order does not prohibit the continuation or adoption of a color scheme for waybills for specific or special traffic when such color scheme tends to expedite or protect the freight.

(12) If, under prevailing practices, freights originating on or destined to points on switching or tap lines are waybilled from or to trunk line junctions or connections with such switching or tap lines, and junction settlements are made at such points of connection, such practices may, until further ordered, be continued.

Many Railroad Associations Abolished or Reorganized

A large number of associations and committees heretofore maintained by the railroads and charged to operating expenses, but which the Railroad Administration does not consider necessary to operation under government control, will go out of existence on April 30 or shortly thereafter, except such as the railroads may see fit to maintain and charge to corporate expenses to be paid out of the amounts they receive from the government as compensation. Others will be retained and may be charged to operating expenses, but in many cases will be reorganized or consolidated.

General Order No. 6, issued by the director general on

January 28, provided that operating revenues should not be expended "for the payment of the expenses of persons or agencies constituting associations of carriers unless such association is approved in advance by the director general."

This includes many organizations which were maintained by dues paid by individual railroad officers but which were charged by them to their expense accounts.

Most of the organizations were authorized to continue until April 30 pending an investigation of the circumstances in each case by the division of public service and accounts, of which C. A. Prouty is director, and Luther Walter, assistant director. Most of the cases have now been passed upon and letters have been sent out either authorizing the railroads to continue to contribute to the expenses of the organizations in the form of assessments or dues, or ordering that operating revenues shall be no longer expended for the purpose. In some cases the approval is temporary, pending the working out of plans for a reorganization.

The various traffic associations, tariff issuing bureaus, classification committees, weighing, inspection and demurrage bureaus, are approved from month to month, pending the working out of plans for a reorganization and simplification of their work by the division of public service and accounts and the division of traffic.

The American Railway Association and some of the other operating associations are also approved but will probably be subject to a reorganization that will fit in with the regional organization of the roads under federal control.

Railroads may continue to be members of chambers of commerce, commercial clubs and traffic clubs in communities reached by their rails on the same basis as industrial concerns, but may have only one membership. In the case of traffic clubs, if they desire to pay the dues of more than one officer the approval of the director general must be secured, but this will probably follow as a matter of course. A railroad may have one membership in the Chamber of Commerce of the United States. Special contributions to such organizations will not be allowed.

Industrial development bureaus are to be discontinued, but agricultural development bureaus are approved.

Local freight associations, collection bureaus, and car interchange associations and similar organizations engaged in working out the problem of unifying terminal operation are to be continued. Fast freight lines are to be abolished. The various superintendents' associations, the various general managers' associations, such as those at Chicago, New York, St. Louis and in Texas, all accounting committees except the national association, the Association of American Railway Accounting Officers, and the Committee of Railway Accounting Officers on Accounts of Express Companies, are to be abolished. Such organizations as the Railway Executives' Advisory Committee, the Bureau of Railway Economics, the Bureau of Railway News and Statistics may no longer be charged to operating expenses. The statistical bureau of the western lines will be discontinued except as to a part of its work, which will be amalgamated in some form with other organizations to maintain traffic statistics. The Presidents' Conference Committee on Federal Valuation is still under consideration. Coal pools are under consideration. The Freight Claim Association is approved from month to month pending reorganization. The Southern Iron Committee and the Coal Traffic Bureau are not approved. The Special Committee on Relations of Railway Operation to Legislation will be discontinued. The Eastern Railroad Association and the Western Railroad Association, which devote their attention to patent matters, are approved. Various other associations and organizations have not yet been passed upon, but will be within a few days.

Some of the organizations specifically approved are as follows: American Association of General Baggage Agents, Association of Dining Car Superintendents, American Association of Passenger Traffic Officers, American Association

of Railway Surgeons, American Railway Engineering Association, American Railway Perishable Freight Association, American Refrigeration Association, Association of Railway Electrical Engineers, Association of Western Railways, Bureau of Information of the Eastern Railroads, Bureau of Information of the Southeastern Railroads, Eastern Association of Car Service Officers, International Association of Ticket Agents, Master Car and Locomotive Painters' Association, Perishable Freight Association, Railroad Young Men's Christian Association, Railway Signal Association and Train Despatchers' Association.

Wage Commission to Report Soon

In Circular No. 24 Director General McAdoo announces that the Railroad Wage Commission appointed for the purpose of making a thorough investigation of the wages paid to all railroad employees, whether members of labor organizations or not, expects to submit its report on Mr. McAdoo's return to Washington upon the conclusion of the present Liberty Loan campaign on May 4, when he will promptly review the report and render a decision upon its findings and recommendations. Any increase in wages made as a result of the report will become effective as of January 1, 1918.

"The task confronting the Railroad Wage Commission was greater in magnitude than any task of a similar character ever undertaken," said Mr. McAdoo. "The commission immediately applied itself to the work with great energy and with unremitting labor to a study of the large and complex questions involved. In matters of such magnitude adequate time is essential to intelligent consideration and wise conclusions. Meanwhile, no employee's interest is being hurt or prejudiced, because whatever increases may be granted will accumulate in the form of savings and will not have been spent in the meantime as might otherwise have been the case."

The director general takes this occasion to appeal to railroad employees who will have several months' back pay coming to them in a lump sum to take advantage of the opportunity to invest in Liberty bonds.

"I hope," he says in the circular, "that every railroad employee in the United States will lend all the money he can, consistently with his individual circumstances, to his government by buying Liberty bonds; they pay four and one-fourth per cent interest per annum and are the safest investment in the world—as safe as the money of the United States and safer than deposits in banks. In lending your money to the government you not only save the money for yourselves, but you help every gallant American soldier and sailor who is fighting in this war now to save your lives and liberties and to make the world safe for Democracy."

Prices for Railroad Fuel Coal

President Wilson is understood to have settled the controversy between the railroad and fuel administrations regarding the prices to be paid for railroad fuel coal and although no official announcement has been made an order is expected by which the railroads will pay more for their coal than formerly, although somewhat less than the regular government price, while the Fuel Administration will be given complete jurisdiction over questions of distribution of fuel. Heretofore railroads have paid a much lower price for coal than other consumers, partly for the reason that a full car supply was guaranteed for such shipments and because the railroads were large consumers and there was no selling expense for the coal companies on the business. The railroads had made their contracts for coal last year before the general government prices had been fixed, but after the government took over the railroads the fuel administrator, Dr. Garfield, took the position that the railroads should pay the full price. This position was controverted by the Railroad Administration, represented by John Skelton Williams, director of finance and purchases, and numerous conferences on the subject were held with coal operators and representa-

tives of the Fuel Administration and the War Industries Board. The dispute was finally laid before the President at a meeting of the war council last week. The exact decision has not yet been made public, but it is understood that railroads will be required to distribute the car supply ratably among all mines, without preference for railroad fuel, and that they will be allowed a concession from the general price on account of their being the largest consumers. It has been estimated that at the government prices for coal the railroads' fuel bill would be increased by approximately \$40,000,000 annually.

Passenger Fares to Be Based on Mileage

The elimination of competition between railroads is going to result in an important readjustment of passenger fares throughout the United States. Passenger rate clerks representing roads in various parts of the country have been at work in Washington this week for the purpose of compiling a nation-wide table of distances as the foundation for a plan of basing passenger fares mainly on mileage without regard to the competitive conditions under which the rates have been made by the short line between any two points, regardless of the distance in many cases. This will result in many increases in fares for travel via circuitous routes. For example the rates from Chicago to Pacific Coast points have been in general the same via the Southern routes or Northern routes as via the direct lines but under the new plan the rate will be proportionately higher for the longer route. It is not proposed to adhere rigidly to the mileage plan but rates will be made the same via different routes which are of approximately the same length, as, for example, in the case of lines between Chicago and New York.

Express Companies to Be Consolidated

Plans for consolidation of the express companies into a single corporation, with a capitalization of \$40,000,000, which will make a contract with the United States Railroad Administration for handling express business on the railroads, are being worked out in a series of conferences between officers of the express companies and the division of public service and accounts. The companies will be given stock in the consolidated company in exchange for physical property on a dollar for dollar basis, and the combined company will handle the express business on the basis of a percentage of the earnings. The companies will be allowed to pay dividends of 5 per cent if the earnings warrant and they will be given an incentive to efficiency and economy by a plan for division of the net income above 5 per cent between the companies and the government. For example, if the company earns enough to warrant a 7 per cent dividend, it may be allowed to pay 6 and pay the government 1 per cent.

Checking of Inter-Road Bills Discontinued

The director general has provided for a large reduction in clerical labor in General Order No. 20, which provides that: "Effective at once, technical and arithmetical examination and checking of all operating bills such as bills for freight and other claims, joint facilities, car repairs, and other similar bills and all statements of accounts such as distribution of freight and passenger revenues and other similar statements, rendered by one carrier subject to federal control to or against another carrier subject to federal control, which accrued or which may accrue on or subsequent to January 1, 1918, shall be discontinued. The carrier rendering such statements, bills, etc., shall take the necessary measures to insure the correctness thereof."

Baltimore & Ohio Trains Use Pennsylvania Terminal

In accordance with an order issued by Director General McAdoo, to take effect April 28, Baltimore & Ohio express trains between Washington and New York will be transferred from the Central of New Jersey terminal in Jersey City and will run to and from the Pennsylvania terminal in

New York City at Thirty-third street and Seventh avenue. Trains will use the Philadelphia & Reading, as at present, between Philadelphia and Bound Brook, N. J.; from Bound Brook to West Newark Junction, 22 miles, they will run over the Lehigh Valley, and from West Newark Junction to New York, 12 miles, over the Pennsylvania. This rerouting of the Baltimore & Ohio trains is ordered for the purpose of utilizing them to capacity, thereby relieving the Pennsylvania between New York and Washington and affording the public greater facilities. There are six trains each way, daily.

General Manager Canal Operations

General Order No. 22 issued by the director general announces the appointment of G. A. Tomlinson as general manager of the New York Canal section of the United States Railroad Administration in charge of the construction and acquisition of equipment for use upon the New York State Barge Canal, and, as an incident thereto, for use upon the waters connecting with the canal. He will operate such equipment for the director general, and he is empowered to enter into contracts either in his own name as general manager or in the name of the director general for the construction, acquisition or chartering of such equipment, for the purchase of supplies needed in operation, and for the transportation of property upon the canal and other waters.

Cars for War Department

In Bulletin No. 11, issued by the car service section, H. M. Adams, director of inland transportation of the War Department, calls attention to the fact that some misunderstanding exists with respect to the placing of orders for cars to load for account of the War Department. Mr. Adams states that his department does not undertake to extend its jurisdiction to the ordering of cars, this being the function of the individual shipper. It should be made plain, however, the circular states, that cars must not be furnished for loading to destinations against which restrictions are placed by the War Department, as indicated in Order No. 2, unless transportation orders are presented to cover such shipments.

Adjustment Board No. 2

Plans for the organization of Board of Adjustment No. 2, to handle controversies between the railroad managements and members of the shop craft organizations, are being worked out under the direction of W. S. Carter, director of the division of labor. The board will be similar to that formed to handle similar controversies with members of the brotherhoods and will consist of six railroad mechanical officers and six officers of the shop craft unions.

Protection of Railroad Property

Willard Robinson has been appointed assistant manager of the Section for the Protection of Railroad Property, and H. L. Van Sickler has been appointed attorney for the section.

Administration to Operate New York Barge Canal

The Railroad Administration has decided to take over the operation of boats on the New York State Barge Canal. Director General McAdoo has announced that, acting upon the recommendations of the committee on inland waterways of the Railroad Administration, which has been negotiating for some time with the state authorities he will build as quickly as possible and put into operation a line of barges to be operated by the government on the canal. The barges will be of modern construction of the most approved type and will be operated in conjunction with and as a part of general railroad and waterways transportation of the country under the control of the director general. This will insure the complete co-ordination of the canal facilities with the railroad facilities and, it is hoped, will greatly enlarge the available transportation facilities in the eastern territory. The title of the canal property remains with the state. G. A. Tomlinson of Duluth, Minn., a member of the committee on

inland waterways and a man of large practical experience in lake navigation, has been appointed general manager of the canal operations, including the construction of the barges and general equipment. He will report to the Eastern regional director. Under government control there can be diverted to the canal from the railroads all of the traffic that can be handled to the best advantage by water. Many delegations have been to Washington since the government took over the railroads to urge that the Railroad Administration take over the operation of the waterway.

Chesapeake & Ohio Canal

The Railroad Administration announces that it has not found it necessary or advisable to undertake the operation of the boats on the Chesapeake & Ohio Canal, for which there has been considerable agitation.

However, the statement says, the Railroad Administration is interested in bringing about the transportation of the largest possible tonnage of coal from the coal fields to Washington by way of the canal. It is to be assumed that under private management the railroads reaching Washington preferred to handle the coal by rail, but under existing conditions the Railroad Administration is anxious to relieve the railroads reaching Washington, to the greatest possible extent, of the burden of carrying the coal tonnage needed by Washington and its vicinity. To accomplish this purpose the Railroad Administration has arranged to co-operate to the fullest extent with the companies maintaining and operating the canal and expects that as a result a substantially increased tonnage of coal will be carried to Washington by the canal during the current year.

Service on the Great Lakes

The Railroad Administration on April 18 established a lake line service between Chicago and Milwaukee and Buffalo under the name of the Lehigh Valley Transportation Company. Seven large modern electric-lighted steamships have been assigned to the service, using as a nucleus two of the ships owned by the Lehigh Valley Railroad, whose right to continue the operation of the lake line service is now in litigation, and five ships chartered from the Great Lakes Transit Corporation, which purchased a number of the railroad-owned boats after they were required to give up their operation of lake line service. It is stated that additional ships will be added as the service requires. The purpose is to relieve the car situation as much as possible. Cars that have been held up on western railroads by the congestion on central railroads will be released with the opening of lake navigation and the loads may be moved east by the way of the lakes and railroad lines east of Buffalo, thereby relieving the railroads in the Central Freight Association territory by a saving of power, fuel and cars that can be devoted to other business. It is expected that shippers of heavy staple commodities from the east, such as sugar, coffee and manufactured articles, will also take advantage of the service. It is intended to work night and day shifts at the terminal points so that the boats can be turned rapidly and afford the greatest possible relief to the railroads. The eastern trunk lines will be served over a common terminal at Buffalo. All-rail rates will prevail in both directions so that in case of congestion on the railroads the freight can be immediately diverted through the lake and give continuous movement to destination. The lake rates, however, will include marine insurance.

Suits Against Carriers

Director General McAdoo has issued General Order No. 18-A, amending General Order No. 18, which was issued on April 9, to read as follows: "It is, therefore, ordered that all suits against carriers while under Federal control must be brought in the county or district where the plaintiff resided at the time of the accrual of the cause of action, or in the county or district where the cause of action arose."

Progress in Locomotive Repairs

Rapid progress is being made in the repairing of locomotives, toward which special efforts have been directed by the Railroad Administration, according to reports received by Frank McManamy, manager of the Locomotive Section. Locomotives have recently been put through the shops at the rate of about 4,500 a week, or at the rate of about 800 a week more than during the corresponding weeks of last year. During February 1,641 more engines were repaired than during February, 1917, and recently a series of weekly reports has been started. These show that during the week ending March 23 there was an increase of 560, during the week of March 30 it was 954, and during the week of April 6 the increase was 946.

These results are being obtained largely as a result of the agreement reached by the Railroad Administration with the shopmen's organizations by which the employees agreed to work longer hours. The shop hours have been increased from schedules of 48 or 55 hours a week to 60, 65 or 70 hours, varying with the conditions at different shops, and the increase in hours for 225,000 men on 45 roads for which figures have been compiled amounts to about 14 per cent.

Another factor in the improved record is the practice of sending locomotives for repairs to the shops of other lines which have more available capacity. About 80 locomotives a week are being sent to foreign line shops, particularly from eastern roads to the shops of western roads at Chicago. About 400 locomotives are now undergoing repairs at foreign shops, and for a little over three weeks locomotives that were earlier sent to the foreign shops have been coming out in sufficient numbers to have an appreciable effect on the transportation situation.

There have also been more locomotives requiring repairs this spring than last year because of the fact that the roads got behind with repairs during the winter. On March 23 there were 4,465 locomotives due for shopping as compared with 4,161 on the corresponding date in 1917.

The Locomotive Section has prepared a standard classification of repairs to locomotives and tenders to be used beginning June 1 by all carriers for reporting repairs made at their various shops and roundhouses, as follows:

CLASS 1.

New boiler or new back end. Flues new or reset.
Tires turned, or new.
General repairs to machinery and tender.

CLASS 2.

New firebox, or one or more shell courses, or roof sheet.
Flues, new or reset.
Tires turned, or new.
General repairs to machinery and tender.

CLASS 3.

Flues all new or reset (superheater flues may be excepted).
Necessary repairs to firebox and boiler.
Tires turned, or new.
General repairs to machinery and tender.

CLASS 4.

Flues part or full set.
Light repairs to boiler or firebox.
Tires turned, or new.
Necessary repairs to machinery and tender.

CLASS 5.

Tires turned, or new.
Necessary repairs to boiler, machinery and tender, including one or more pairs of driving-wheel bearings refitted.

General repairs to machinery will include driving wheels removed, tires turned or changed, journals turned, if necessary, and all driving boxes and rods overhauled and bearings refitted and other repairs necessary for a full term of service.

Running repairs unclassified.

Suffix "A," to any class of repairs, will indicate that the repairs are required on account of accident.

Suffix "B" will show the initial application of stoker.

Suffix "C" will indicate the initial application of superheater.
 Suffix "D" will indicate initial application of outside valve gear.
 Suffix "E" will indicate locomotive was converted from compound to simple, or from one type to another.

Mallet locomotives will be indicated by a star following classification.

Locomotives receiving class 1, 2 or 3 repairs must be put in condition to perform a full term of service in the district and class of service in which they are to be used.

Locomotives receiving class 4 repairs must be put in condition to perform not less than one-half term of service in the district and class of service in which they are to be used.

Locomotives receiving class 5 repairs must be put in condition to perform not less than one-fourth term of service in the district and class of service in which they are to be used.

The purpose of the standard classifications is to enable comparisons to be made readily and fairly between the results accomplished at different shops. It has heretofore been difficult to compare the work of different shops of even the same capacity and number of men because of the different classifications under which the roads recorded the work done; an effort was made to put them on a fairly comparable basis by reports based on the time required for shopping. It is expected that having reports which may be checked against each other will have a good effect on performance.

Circular C. S. 7

In order that a car supply for shipments of lake coal and ore during the season of navigation may be provided, the manager of the Eastern Railroads Car Pool is instructed in circular No. C. S. 7, issued by the Car Service Section, to all railroads not members of the Eastern Open-Top Car Pool, to assemble all hopper or so-called self-clearing cars of Eastern Car Pool (designated in the Official Railway Equipment Register under M. C. B. Classes "H" and "GD") and confine them to that service to the extent that all like coal and ore carrying roads may transport lake coal and ore which will offer for movement during the season of navigation. To accomplish this purpose, all roads not members of the Eastern railroads car pool are directed that all hopper or so-called self-clearing cars (M. C. B., Classes "H" and "GD") of the member railroads must, until further notice, when released from original lading on railroads other than members of the Eastern Railroads Car Pool, be returned empty by the most direct route to the nearest pool-member road. Any "member" road will be considered the "home road" for cars included in this arrangement.

Emergency Rule 1 of General Order C. S. 1, dated April 26, 1917, is modified in accordance with the above.

Seventeen Years Life From Treated Ties

Seventy-Three Per Cent of Those Installed on Burlington Line
 in Western Nebraska in 1900 Are Still in Service

IN 1900 when the Chicago, Burlington & Quincy built the line from Bridgeport, Neb., to Sterling, Colo., forming a part of what is now the Sterling division of the Burlington, a considerable mileage of the new track was laid with treated ties. One section of a mile laid with treated ties and another of two miles were later designated as test sections, and a careful record has been kept of all tie renewals within these limits. It is now 17 years since the ties were laid, a sufficient time to develop the effectiveness of the treatment, and the results of an inspection recently made constitute a most conclusive demonstration of the value of tie preservation. In addition to the efficient control on the part of a well-organized timber-treating department, these test sections of ties have been under the continuous supervision of one man, James Toohey, who has been roadmaster on this line ever since it was placed in service.

Between Sidney, Neb., and Peetz, a distance of 14 miles, all the ties laid in 1900 were 6 in. by 8 in. hewn Black Hills or bull pine ties, treated with zinc chloride. In the two miles just north of Peetz where a careful record of all renewals has been kept, 77 per cent of the original ties are still in the track, the 23 per cent of replacements including renewals for all reasons—breakage and cinder burning as well as decay, tie cutting, etc. There are still many continuous stretches of 20 or more of the old ties in place, and, in one case observed, 65 successive ties of the original lot were noted.

Near Bridgeport, Neb., records have been kept on a mile of 6 in. by 8 in. by 8 ft. sawed Douglas fir ties also treated with zinc chloride. There were 3,200 of these ties in all and now, after 17 years, 2,703 of them, or 84.5 per cent, are still in service. In this case a more emphatic demonstration of the value of timber treatment was obtained through the fact that a mile of untreated Douglas fir ties was laid at the same time in the track directly south of the mile of treated ties and under as nearly duplicate conditions as it is possible to provide. The untreated ties commenced to come out of the track within five years after they

were laid, most of them had been removed after 7 years, and the last one was replaced in the eighth year. In other words, 100 per cent of the untreated ties had less than half the life of 84½ per cent of the treated ties.

Further details of these tests are of interest. All of the ties were treated at Edgemont, S. D., with 0.33 lb. of zinc chloride per cu. ft. of timber, the condition of treatment being such that the actual content of the preservative varied from 0.19 lb. to 0.6 lb. While this treatment is less than that usually given at the present time it was the standard treatment at the Edgemont plant previous to July, 1900. The amount of preservative was changed at that date to 0.4 lb. per cu. ft., and in 1902 to 0.5 lb., which is the regular treatment at the present time. It is also to be noted that the ties were subjected to steaming before treatment under a pressure of 15 to 20 lb. per sq. in. for several hours, a much more severe heat treatment than is considered good practice at present.

The ties were placed 18 to a 30-ft. rail in gravel ballast. The rail weighed 75 lb. per yd. and no tie-plates were used. The roadbed has been in a generally good condition, no trouble being experienced in this territory with soft embankments or cuts. The annual rainfall is about 15 in. The rail on the bull pine ties was renewed in 1910, and that on the Douglas fir ties in 1913, the new rail being 90-lb. A. R. A. type A rail laid with tie-plates. The ties were respaced with the rail renewal and there are now 20 ties to the 33-ft. rail. Several ballast raises have been made during the 17 years.

While the traffic was light during the first few years of operation, it has grown steadily and now includes a considerable ore tonnage hauled in 100,000-lb. capacity cars overloaded 20 per cent and handled by Mikado locomotives, the heaviest of which weighs 303,400 lb.

One of the most important factors in the value of this record of tie service is in the system of inspection under which the condition of the ties has been observed. In addition to the personal attention of the roadmaster, the

ties are under the care of the superintendent of timber preservation, in connection with the study of some 26,000 ties now under observation on various parts of this railroad. These ties are installed in sections of a 1,000 or more, each section containing ties of various species treated by one or more processes, or placed in the track without treatment. Through the agency of a system of numbering, marking and records, it has been possible to keep an accurate account of the ties in these sections which are inspected by the superintendent of timber preservation, the roadmaster, the section foreman and usually the division superintendent or general superintendent.

These inspections have taken place annually since 1909, when the first section of test ties was installed. The two special sections of treated ties on the Sterling division described above are also examined in the course of each of these annual inspection trips and receive the same careful attention according the regular test sections. The ties on the Sterling division were installed under the direction of F. J. Angler at that time superintendent of timber preservation on the Burlington, now superintendent of timber preservation, Baltimore & Ohio, Baltimore, Md. He also originated the system of special test sections and their annual inspection, and this work has been continued by his successor, J. H. Waterman, superintendent of timber preservation, Chicago, Burlington, & Quincy, Galesburg, Ill.

Eighth Annual Report of the Test Sections

Since the regular 1,000 tie test sections on the different lines referred to above were eight years old at the time of the inspection last fall, a sufficient age to develop the full life of a large part of the untreated ties, a study of the records obtained with the various species of timber and the different forms of treatment during this period is instructive and indicative of the final results. Accordingly the summary of Mr. Waterman's report is abstracted below, showing the result of these tests in the eight states of Wisconsin, Illinois, Missouri, Iowa, Nebraska, Colorado, South Dakota and Wyoming.

SUMMARY

Total ties, various kinds, various processes, placed in experimental tracks, 1909 and 1910. C. B. & Q. Railroad.

Process	Total placed	Total removed to date	Percentage removed account decay	Percentage removed account other causes
Straight creosote	3,264	64	0.3	1.6
Card process	15,817	730	0.6	3.9
Burnettizing	2,488	162	2.7	3.8
Untreated	3,270	2,740	80.2	3.4

NOTE—These percentages include only the ties placed in the thousand lots on various divisions.

Mr. Waterman's remarks regarding the service being secured from various classes of timber are also of special interest and are abstracted below.

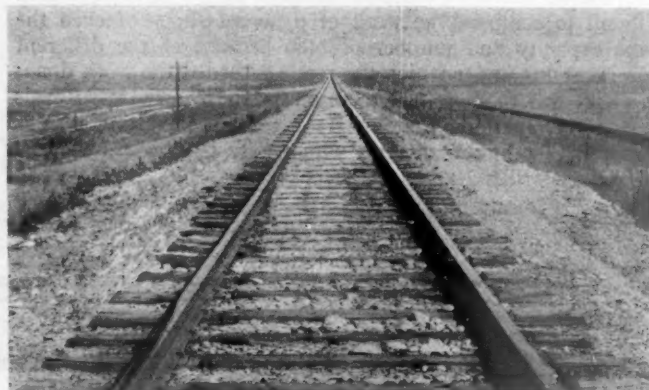
"Kind of treatment—I am of the opinion that the best treatment for the lines east of the Missouri river is a mixture of creosote and zinc chloride or of water-gas tar and zinc chloride, while for the dry territory supplied with ties from Sheridan, Wyo., we get splendid service out of ties treated with zinc chloride only.

"I list the ties which will give the best service treated, after giving this matter a great deal of thought and close observation as follows: (1) Red oak, (2) fir, (3) cypress, (4) pine, (5) various other inferior woods, as follows: Elm, soft maple, hard maple, beech, birch, hickory, red gum and tupelo gum. These latter-named woods are never to be considered unless they can have personal supervision from the time they are cut in the woods until they are delivered in the tie plant yard for seasoning. I am in favor of using only 7 in. by 9 in. by 8½ ft. red oak ties for our principal main lines. For branch main lines and passing tracks where we have reasonably heavy traffic, I would use the standard 6 in. by 8 in. by 8 ft. red oak ties when I can get them. There is no question about the service that we

can get out of red oak ties properly treated—that is past the experimental stage. The red oak ties at Mystic, South Dakota, have now given us 17 years' service and 71 per cent are still in the track.

"I am disappointed in our pine ties. I do not believe their average life will be over 10 years. Last year I saw indications which led me to believe that we are not going to get results from our sap pine ties that we had hoped. I am afraid the trouble is that many of our sap pine trees are banked on the river in the hot months, during which time the sap becomes more or less sour and the ties are partially decayed before we get them. The Santa Fe overcomes this by sawing the ends off every tie before treating it. Decay is very easily detected if the ties are sawed.

"We are getting most excellent results from ties bought in the Black Hills, and there is no question but that the



A Section of the Track Built in 1900

Black Hills pine ties give us as good results as the fir ties. There is no bug infested Black Hills timber today and we have thousands of these ties in the track and they will give us 15 years' life.

"Ties deteriorate in a few days or weeks at the most, if they are not properly handled. If these ties become dotey, the best treatment in the world will not do them any good. If I were in authority and accepted ties of the woods named, I would have an inspector to look after them and have him thoroughly trained what to look for, and what to expect, if I expected to get the best possible results out of them. The summary shows wonderful results obtained from some of these woods, and yet they are dangerous to handle unless we are willing to pay two or three times as much for inspection and care as we pay for red oak, cypress, fir and pine.

"I would not take a white oak tie at any price unless I treated it. In my judgment, it is a waste of money to buy white oak ties and put them in track without treatment.

"I have carefully watched the results obtained from treated bridge ties and I have come to the conclusion to recommend that we discontinue treating bridge ties with zinc chloride, because they check badly, even worse than they would if they were not treated. I believe we will get very little longer service from bridge ties treated with zinc chloride than untreated. I believe that if we treat bridge ties with creosote, we will get 20 to 25 years' life out of them.

"Few of us appreciate the full value of seasoning ties before treatment. (1) You can treat more ties in a given length of time when they are properly seasoned. (2) I believe the ties will give better service after treatment. (3) Ties properly air seasoned will not check as badly as ties treated green.

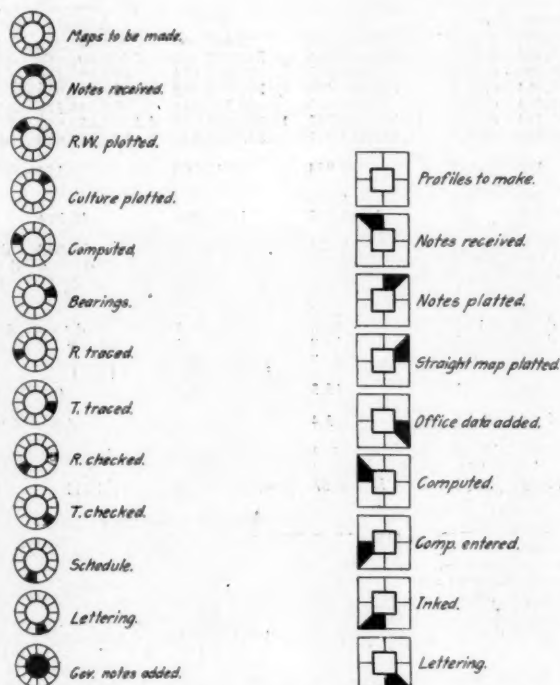
"Red oak ties and other similar kinds of hardwood ought to season one year, fir ties ten months and pine ties from six to eight months."

Keeping Progress Records

By Wm. P. Munger

IN MODERN ENGINEERING as in modern manufacturing, progress charts are not only used to make the condition of the work quickly apparent to the man higher up, but are frequently so designed as to be of great assistance to the man who must keep the work in balance. When the work is of a simple nature, such as laying out a water pipe along the track, a map or profile colored with various colored pencils as each of the operations progress is adequate.

In rebuilding a series of culverts a number or description



Key to Progress Records for Maps and Profiles

of the culverts written across the top of a sheet of paper ruled off in squares and the name of the operation written in the column on the left hand side of the page is a good form for a chart. In use, the squares opposite the various operations are filled in under the culvert numbers as the operation in question is performed on that culvert. This filling in may be done in various ways according to the units of operation written in the column at the left and the detail desired. If "concrete" was the operation then the square under the proper culvert would be outlined when the mixing started and filled in solid when complete. Greater detail could be shown by making one side of the square when the materials were ordered, one side when delivered, one side when machinery was ordered, one side when delivered, one diagonal when forms were set up, one diagonal when pouring started, the solid filling showing completion. If the operation was "stone," the top half of the square would contain the date ordered, and the bottom half the date when delivery was begun, and solid filling or the outlining of the square would indicate that the delivery was complete. Again, if the square is large enough it can be filled in from day to day so as to represent the percentage of required stone which has been delivered.

For a long and complex job, like a valuation map of a railroad system, a chart should be devised which requires the minimum of special training to understand, is compact, easy to operate, and yet impressively tabulates the progress. The operations follow no set order and in some cases there

is a necessary delay of several months between the beginning and the end of one operation. Two number systems are essential as the map sheets are numbered independent of the mile posts by which all of the available information is generally indexed.

To cope with these conditions a chart on the order of Fig. 1 is desirable. Here the valuation section number and name is shown in columns at the left and the number of the valuation sheets composing each section stretch across the top. At the intersection of the name line and the sheet number column there is plotted an outline ring better shown in the first entry in Fig. 2 and indicating a map to be made. The number of these outline rings following the section name depends directly on the length of that section. The Pine Branch, 3.6 miles long, requires four sheets, and hence four outlines were plotted in the first four positions. Similarly with other sections.

The small figures in the center indicate the high mile posts shown on that sheet. Index maps and certain terminals would be shown in a space between the line column and column I. Other than right of way maps and track maps no distinction is made between those miles requiring one sheet and those requiring several sheets. The outline ring shown as the first entry in Fig. II consists of a heavy black line circle about 5/16 in. in diameter and concentric with this, a light printing ink (red or blue) circle about 9/16 in. in diameter with radial lines between the two, dividing the ring into the desired number of parts. The heavy ring or circle is the convention for maps to be made

No.	Name	1	2	3	4	5	6	7	8	9	10	11
1	Main line	1	2	3	4	5	6	7	8	9	10	11
2	Pine branch	1	2	3	4							
3	Lane br.	1	2	3								
4	Kane br.	1	2	3	4	5	6	7	8	9	10	11
5	Mine line	1	2									
6	Transfer	1	2									
7	River br.	1	2									

Typical Progress Record

and serves as a base on which to build the ring as the segments are added. The light ink circle and radial line serve as a guide when filling in the various segments. It is also a help to the eye in observing quickly the various segments filled in. The chart should be made on tracing cloth and posted periodically, the daily posting from the time cards being carried on a print by a clerk. This print is filed when it has been posted on the tracing and the print filled to show the progress during the given period. A new print is taken for the clerk's use after each posting of the tracing.

In using the chart, when an operation on a certain map is begun the outer circumference of the segment for that operation is filled with a heavy black line, and when the operation is shown to be complete by the time cards, the whole segment is filled in.

In choosing the number, value and meaning of each segment considerable judgment must be shown, and the learning of the key can be greatly facilitated by a proper grouping of the operations. In Fig. II all operations pertaining to plotting are shown above the center line and those pertaining to the tracing below the center. The right of

way work is shown to the left and the track to the right. There are five divisions above and six below, the notes received being split if required. The government notes can be split if required. This item can well occupy the central circle because the mile post numbers are of no further value. Fig. III shows the same built-up system developed on a square and worked out to show the progress on valuation profiles. Although these systems can be used with any time card system which tells much of anything about the work, the printing of a few outlines on the time cards and

Freight Operations in January

THE EFFECTS OF SEVERE WEATHER and the results of accumulated congestion during the month of January, the first month of government control of the railways, are strikingly illustrated in the report of freight operations for the month compiled by the Bureau of Railway Economics for the American Railway Association. The revenue ton miles of freight handled decreased 17.2 per cent as compared with January, 1917, and the average mileage per

FREIGHT OPERATIONS OF STEAM RAILWAYS FOR JANUARY, 1918.

Item	UNITED STATES*				EASTERN DISTRICT			
	1918	1917	Increase or decrease		1918	1917	Increase or decrease	
			Amount	Per cent			Amount	Per cent
Freight train-miles	47,353,554	54,602,555	d 7,249,001	d 13.3	18,015,216	22,603,764	d 4,588,548	d 20.3
Loaded freight car-miles	923,062,084	1,237,790,541	d 314,728,457	d 25.4	353,973,516	543,875,284	d 189,901,768	d 34.9
Empty freight car-miles	394,879,768	529,079,975	d 134,200,207	d 25.4	172,634,965	253,518,111	d 80,883,146	d 31.9
Total freight car-miles—loaded and empty	1,317,941,852	1,766,870,516	d 448,928,664	d 25.4	526,608,481	797,393,395	d 270,784,914	d 34.0
Freight locomotive-miles	55,442,425	63,551,810	d 8,109,385	d 12.8	22,497,465	27,738,041	d 5,240,576	d 18.9
Revenue ton-miles	24,665,552,565	29,777,603,746	d 5,112,051,181	d 17.2	10,599,132,795	14,186,805,748	d 3,587,672,953	d 25.3
Non-revenue ton-miles	2,637,487,835	2,875,012,727	d 237,524,892	d 8.3	814,574,887	847,340,856	d 32,765,969	d 3.9
Average number of freight locomotives in service	30,110	29,947	163	0.5	12,824	12,700	124	1.0
Average number of freight locomotives in shop or awaiting shop	4,713	4,416	297	6.7	1,989	1,961	28	1.4
Average number of freight cars in service	2,320,591	2,251,697	68,894	3.1	1,215,595	1,198,801	16,794	1.4
Average number of freight cars in shop or awaiting shop	117,657	126,906	d 9,249	d 7.3	65,970	71,883	d 5,913	d 8.2
Home	82,302	96,066	d 13,764	d 14.3	45,018	53,842	d 8,824	d 16.4
Foreign	35,355	30,840	4,515	14.6	20,952	18,041	2,911	16.1
Tons per train	577	598	d 21	d 3.5	634	665	d 31	d 4.7
Tons per loaded car	29.6	26.4	3.2	12.1	32.2	27.6	4.6	16.7
Average miles per locomotive per day	59.4	68.5	d 9.1	d 13.3	56.6	70.5	d 13.9	d 19.7
Average miles per car per day	18.3	25.3	d 7.0	d 27.7	14.0	21.5	d 7.5	d 34.9
Per cent of empty car-miles	30.0	29.9	0.1	0.3	32.8	31.8	1.0	3.1
Per cent of freight locomotives in shop or awaiting shop	15.7	14.7	1.0	6.1	15.5	15.4	0.1	0.6
Per cent of freight cars in shop or awaiting shop	5.1	5.6	d 0.5	d 8.9	5.4	6.0	d 0.6	d 10.0
Revenue ton-miles:								
Per freight locomotive	819,181	994,343	d 175,162	d 17.6	826,508	1,117,071	d 290,563	d 26.0
Per freight car	10,629	13,225	d 2,596	d 19.6	8,719	11,834	d 3,115	d 26.3
Average miles operated—single track	220,661.02	220,834.35	d 173.33	d 0.1	57,637.37	57,948.88	d 311.51	d 0.5

Item	SOUTHERN DISTRICT				WESTERN DISTRICT			
	1918	1917	Increase or decrease		1918	1917	Increase or decrease	
			Amount	Per cent			Amount	Per cent
Freight train-miles	8,582,212	9,307,739	d 725,527	d 7.8	20,756,126	22,691,052	d 1,934,926	d 8.5
Loaded freight car-miles	157,000,980	208,675,283	d 51,674,303	d 24.8	412,087,588	485,239,974	d 73,152,386	d 15.1
Empty freight car-miles	79,596,983	93,009,719	d 13,412,736	d 14.4	142,647,820	182,552,145	d 39,904,325	d 21.9
Total freight car-miles—loaded and empty	236,597,963	301,685,002	d 65,087,039	d 21.6	554,735,408	667,792,119	d 113,056,711	d 16.9
Freight locomotive-miles	9,642,988	10,477,271	d 834,283	d 8.0	23,301,972	25,336,498	d 2,034,526	d 8.0
Revenue ton-miles	4,324,392,816	5,309,230,980	d 984,838,164	d 18.5	9,742,026,954	10,281,567,018	d 539,540,064	d 5.2
Non-revenue ton-miles	481,505,389	509,033,676	d 27,528,287	d 5.4	1,341,407,559	1,518,638,195	d 177,230,636	d 11.7
Average number of freight locomotives in service	4,962	4,926	36	0.7	12,324	12,321	3	a
Average number of freight locomotives in shop or awaiting shop	667	593	74	12.5	2,057	1,862	195	10.5
Average number of freight cars in service	328,900	279,924	48,976	17.5	776,096	772,972	3,124	0.4
Average number of freight cars in shop or awaiting shop	13,878	14,077	d 199	d 1.4	37,809	40,946	d 3,137	d 7.7
Home	9,708	11,116	d 1,408	d 12.7	27,576	31,108	d 3,532	d 11.4
Foreign	4,170	2,961	1,209	40.8	10,233	9,838	395	4.0
Tons per train	560	625	d 65	d 10.4	534	520	14	2.7
Tons per loaded car	30.6	27.9	2.7	9.7	26.9	24.3	2.6	10.7
Average miles per locomotive per day	62.7	68.6	d 5.9	d 8.6	61.0	66.3	d 5.3	d 8.0
Average miles per car per day	23.2	34.8	d 11.6	d 33.3	23.1	27.9	d 4.8	d 17.2
Per cent of empty car-miles	33.6	30.8	2.8	9.1	25.7	27.3	d 1.6	d 5.9
Per cent of freight locomotives in shop or awaiting shop	13.4	12.0	1.4	11.7	16.7	15.1	1.6	10.6
Per cent of freight cars in shop or awaiting shop	4.2	5.0	d 0.8	d 16.0	4.9	5.3	d 0.4	d 7.5
Revenue ton-miles:								
Per freight locomotive	871,502	1,077,798	d 206,296	d 19.1	790,492	834,475	d 43,983	d 5.3
Per freight car	13,148	18,967	d 5,819	d 30.7	12,553	13,301	d 748	d 5.6
Average miles operated—single track	35,854.84	35,725.90	128.94	0.4	127,168.81	127,159.57	9.24	a

d Decrease. a Less than one-tenth of one per cent. * The returns included in the monthly statement represent about 98 per cent of the total operated mileage of the roads of Class I, and about 99 per cent of their total traffic.

having the men fill in segments representing the operation on which they work will undoubtedly save many mistakes.

WAR WAGES OF ENGLISH RAILWAYS.—According to the speeches of the various chairmen at the recent annual meetings of the English railway companies, the war wages paid to their employees is costing as follows: Great Western, \$17,500,000 a year; Midland, \$20,000,000; Great Northern, \$8,500,000; Furness, \$450,000; Taff Vale, \$110,000; and Highland, over \$500,000. Nor is this in some cases all, as the sums do not include the consequent increase for overtime and Sunday duty, which are now taken into account when calculating war wages.—*The Engineer, London.*

locomotive per day was only 59.4 as compared with 68.5 in January, 1917, a reduction of 13.3 per cent, while the average miles per car per day fell from 25.3 to 18.3, or 27.7 per cent. There was also a reduction of 3.5 per cent in the average trainload, but an increase of 12.1 per cent in the tons per loaded car.

In the eastern district the reduction in revenue ton miles handled was 25.3 per cent. The locomotive mileage per day was only 56.6 and the mileage per car per day was reduced to 14. In the southern district the ton mileage was reduced 18.5 per cent and in the western district 5.2 per cent.

The comparative summary for the month for the railways as a whole and for the three districts is shown in the table.

Determining When Rail Should Be Renewed

A Description of the Methods in Use on the Santa Fe to Secure Uniformity in Practice and Proper Standards

By C. W. Baldridge

Assistant Engineer, Atchison, Topeka & Santa Fe, Chicago

WHEN IS A RAIL WORN OUT? This is a question, the answer to which is the same as the answer to many other questions of similar portent—"it depends." In the case of rail, it depends upon the class of the track in which the rail happens to be in use; the standard of maintenance attempted by the company, and also upon what other use the company has for the rail and how urgent that other use may be. With some companies, insufficient earnings, or insufficient returns on the business handled, may compel the postponement of the renewal of rail, which, judged by all other conditions, should be renewed. Other factors may

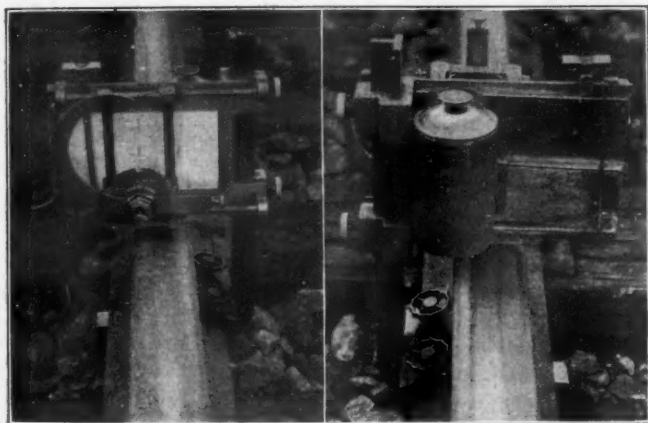


Fig. 1—Two Views of the Rail Contour Instrument

enter into the answer, and, indeed, sometimes none of the factors determine, as rails occasionally become so worn out that safety compels their renewal.

On the Atchison, Topeka & Santa Fe the practice has been established for several years of purchasing no new rail for use on branch lines, but to supply the requirements of branch lines and new lines constructed from rail released from the tracks of main lines. This practice does not control the removal of rail from main line tracks, but is one of the factors to be considered.

The method followed in determining when the rail in main line tracks shall be renewed, is to have each roadmaster make an inspection of his district each spring and report the rail which will require renewal the following spring. The roadmasters pass their lists to their superior officers by whom, after such checking and inspection as is deemed necessary, they are consolidated into a list for each grand division and forwarded to the general officers of the company.

The chief engineer of the system then sends out an assistant to make a careful inspection of rail shown on the list for renewal, in order to determine its physical condition to the end that the rail most in need of renewal may be given preference. The method of inspection consists in going over the track on a motor car at a speed slow enough so that the rail can be looked over carefully, and of stopping at occasional locations where measurements of the rails are taken. These consist of contours of the rails to show the amount of wear; measurements of the extent to which

the rail ends are low to show the amount of permanent set and of batter at the ends of the rails; measurement of the width of opening (space left for expansion) between rails, and the gage of the track.

The number of locations at which measurements are taken varies of course with the length of the stretch of rail to be renewed. Usually not less than eight locations are taken for measurements, and as many more as may be required to show the average condition of the rail. Ordinarily, the measurements are taken at one point on each mile.

The contours of the rails are taken by means of the rail contour instrument shown in Fig. 1. This instrument is so designed that the face of the base of the instrument is in contact crosswise and on the underside of the base of rail, also with a guiding shoulder on the instrument in contact with the edge of the base of the rail, thus insuring that the contour or section is taken perpendicular and at right angles to the axis of the rail, thereby getting a true section of the rail. The contour is drawn by the instrument upon white paper, which is carried in a roll in the paper magazine on the instrument, and with the end stretched tightly across the drawing plate and clamped in position while receiving the pencil record of the rail. After removal from the instrument, each contour sheet is labeled with the location and such other information as may be desired for making up the report. Upon receipt in the office, these contour sheets are sent to the drafting room and are spread under tracings of theoretical original sections of the particular type of rails under investigation. The field contour is then traced into the original section; the difference of the two showing the amount of wear.

The amounts which the rail ends are low are measured by means of a 30-in. straight edge (Fig. 2), equipped with a multiplying indicator pivoted near the end of the straight

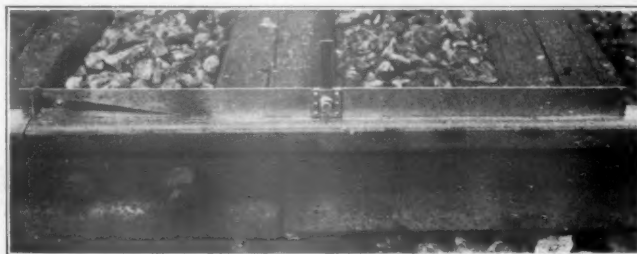


Fig. 2—Measuring the Batter at Rail Ends

edge, as shown. The short end of the indicator blade is pushed down into contact with the face of the rail and the amount the joint is low is shown in hundredths of an inch, by the scale under the long end of the indicator blade.

The amount of space between rail ends is measured by means of a taper gage (Fig. 3), which is graduated to hundredths of an inch, the taper gage being thrust between the rail ends, crosswise the rail, as far as it will go and the opening read on the gage.

The gage of track is measured by means of a two-piece extension rule (Fig. 4), sometimes called a glazier's rule.

The rule is placed against the head of one rail at the gaging point, and is then extended until it makes contact with the opposite rail at the gaging point. The width of track is then read on the face of the rule where the end of the top half cuts the scale on the bottom half of the rule.

Measurements of the amount that the rail ends are low, the amount of space left for expansion, and the gage of the track, are made on a uniform number of joints in each rail, following the point where rail contours are taken, in order

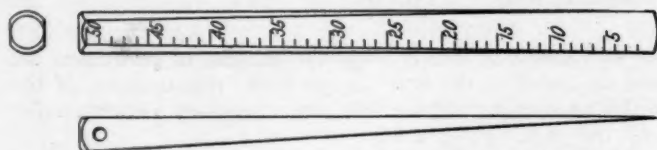


Fig. 3—Taper Gage to Measure Openings Between Rails

to determine the average condition of the rails in these respects.

The results of the measurements thus made and of the inspection also serve as a check upon the maintenance of the tracks, which naturally is a large factor in the life of rail. Another factor bearing on rail renewals and which cannot be measured or arrived at in any similar manner is worn spots, defective spots, and driver burns on the rails.

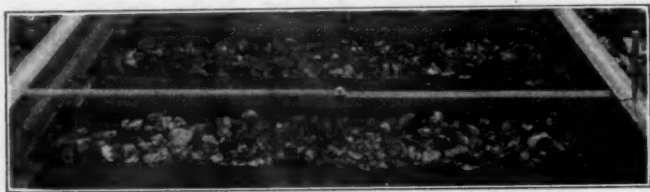


Fig. 4—Measuring the Gage of the Track

The condition of the rail in this respect can only be judged through observation by an experienced man.

After the inspection is complete and the rail contours plotted are in the drafting room, a report is prepared giving the location of the rail under consideration, a history of the rail as to date laid, etc., the approximate tonnage carried by the rail, the characteristics of engines in use over the rail, a tabulation of the joint measurements described above, prints of the rail contours taken, and a statement of the condition of the rail as found by the assistant who

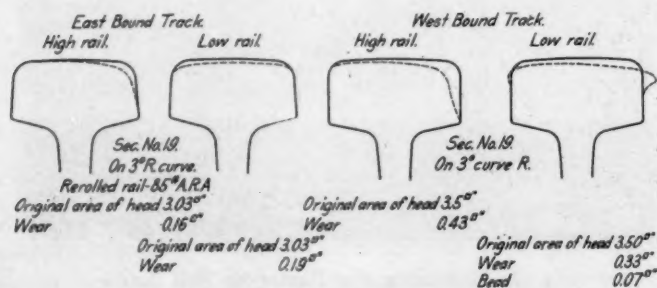


Fig. 5—Typical Rail Contour Sections

made the inspection, with a conclusion as to the necessity for renewal or otherwise based on the physical conditions only.

These reports are then forwarded to the chief engineer of the system, who takes up the question of rail renewals with the general managers and the situation is discussed by all concerned. In addition to the physical condition of the rail, the requirements for relayer rail for use on branch lines, for the construction of new lines, and for the renewal

and construction of yards and sidings, the advisability of anticipating future renewals in order to avoid too much work on one roadmaster's district in a single year, and all other factors are considered. The results and conclusions are reported to the vice-president, by whom the final decision of allotments is made.

Figure 5 shows a sheet of rail contours as worked up in the drafting room for enclosure in a report. This sheet covers rail on double track, both tracks of which were listed for renewal. The rail sections were taken by commencing on the left-hand rail and working across both tracks. By this method, the paper in the contour recording machine is advanced for each section, but is not torn off until all four rails are traced. This arrangement aids in keeping the rail contours in order and saves repeating notes.

Train Accidents in March¹

THE FOLLOWING IS A LIST of the most notable train accidents that occurred on the railways of the United States in the month of March, 1918:

Collisions						
Date	Road	Place	Kind of Accident	Kind of Train	Kil'd	Inj'd
4.	Atlanta, B. & A.	Talbotton	xc	F. & F.	2	0
17.	M., K. & Texas	Huber	bc	P. & F.	1	3
21.	Balt. & Ohio	Youngstown	bc	P. & F.	1	0
*23.	Penn.	Trenton	rc	F. & F.	1	2
Derailments						
Date	Road	Place	Cause of Derailment	Kind of Train	Kil'd	Inj'd
4.	Pennsylvania	Canton, O.	neg.	F. & P.	1	2
9.	Louisville & N.	Bonnieville	acc. obst.	F.	2	1
14.	Pennsylvania	Portageville	washout	P.	3	0
15.	Pennsylvania	Elizabethtown	slide	P.	2	24
17.	M., K. & Texas	Schell City	d. switch	P.	0	1
25.	Chesapeake & O.	Buffalo Creek	acc. obst.	F.	2	1
*26.	Del. & Hudson	Slingerlands	d. journal	F.	0	1
30.	Del. & Hudson	Cadyville	washout	F.	0	3
Other Accidents						
Date	Road	Place	Cause of Accident	Kind of Train	Kil'd	Inj'd
22.	Fort Worth & D.	Electra	boiler	F.	3	0

The trains involved in the collision near Talbotton, Ga., on the night of the 4th were eastbound extra freights No. 207 and No. 212. The last named train had been stalled on an ascending grade and a part of the cars had to be taken forward to a side track and set off. The engine, on its return to the rear part of the train accidentally started the standing cars down grade, without coupling to them, and they became uncontrollable, although there were two men on them, and collided with train 207. One engine, one caboose and 10 loaded cars were wrecked, and the conductor and engineman of 207 were killed.

The trains in collision on the Missouri, Kansas & Texas, at Huber, Tex., on March 17 were southbound passenger No. 25, and a northbound extra freight, which was standing on a side track. The passenger train, drawn by two engines, ran over a misplaced switch and into the head of the freight, badly damaging three locomotives, one baggage car and one coach. Four trainmen were injured, one of them fatally. The collision occurred at 1:25 a. m. A brakeman of the freight, sent to the switch to turn it after the passage of the passenger train, turned it immediately in front of that train, thus causing the collision. It appears that, while waiting for the passenger train, the brakeman had been asleep in the caboose; and that he turned the switch while his mind was not clear.

The trains in collision at Youngstown, Ohio, on the night

¹ Abbreviations and marks used in Accident List:
rc, Rear collision—bc, Butting collision—xc, Other collisions—b, Broken—d, Defective—unf, Unforeseen obstruction—unx, Unexplained—derail, Open derailing switch—ms, Misplaced switch—acc. obst., Accidental obstruction—malice, Malicious obstruction of track, etc.—boiler, Explosion of locomotive on road—fire, Cars burned while running—P. or Pass., Passenger train—F. or Ft., Freight train (including empty engines, work trains, etc.)—Asterisk, Wreck wholly or partly destroyed by fire—Dagger, One or more passengers killed.

of the 21st, were westbound passenger No. 5 and an eastbound yard train consisting of a locomotive and two cars, one of which, an empty baggage car, was ahead of the engine. The engineman of the yard engine was fatally injured. The yard engine was moving in an eastward direction across the westbound main track. The baggage car was crushed for half its length by the locomotive pushing it. It appears that a signalman had admitted train No. 5 to the block section after having given the yard engine permission to cross the main track.

The trains in collision at Trenton, N. J., on the 23d were eastbound through freights. One engine, one caboose and five cars were badly damaged; a flagman was killed, and two other trainmen were injured. The caboose took fire and was consumed. The leading train had become stalled and the engine of the other had been detached from its cars and had been coupled to the standing train, but the cars of the second train, which had been left standing on a descending grade without having sufficient hand brakes set to hold them, ran forward, and crashed into the locomotive.

The train derailed at Canton, Ohio, on the 4th, was an eastbound freight. The engine and three cars were thrown off the track at a derailing switch. Two of the cars fell so as to foul the westbound track, and westbound passenger train No. 1405 ran into the obstruction. The engine and four cars of this train were overturned. Three employees on the passenger train were injured, one of them fatally.

The train derailed near Bonnieville, Ky., on the 9th, was a northbound freight. The derailment was caused by a push car loaded with scrap rail, and the locomotive and six cars were overturned and fell down a bank. The engineman and fireman were killed and one trainman was injured.

The train derailed north of Portageville, N. Y., on the 14th, was a southbound freight. The engine and four cars fell into a washout caused by a flood; and the engineman, fireman and one trainman were killed.

The train derailed near Elizabethtown, Pa., on the 15th, was westbound passenger No. 19. Three steel sleeping cars were wrecked and both main tracks were blocked. Two passengers were killed and 21 passengers and 3 trainmen were injured. The cause of the derailment was a fall of a rock, which fell from a ledge at the right of the roadway just at the moment when the train was passing, the engine and two cars having cleared the obstruction in safety. This

accident was reported in the *Railway Age* of March 22 and March 29.

The train derailed near Schell City, Mo., on the 17th, was a special passenger carrying troops. One soldier was injured. The cause of the derailment was a loose driving-wheel tire.

The train derailed near Buffalo Creek, Ky., on the 25th, was an eastbound freight. The engine struck a tree which had fallen across the track and both engine and tender were overturned. The firemen and one brakeman were killed, and the engineman was slightly injured.

The train derailed at Slingerland, N. Y., on the 26th, was an eastbound freight. Twenty-three loaded cars were derailed and, being set afire by chemicals in one of the cars, they were mostly burnt up. The cause of the derailment was the failure of a journal which had become overheated. Estimated loss, \$35,000.

The train derailed near Cadyville, N. Y., on the 30th, was an eastbound passenger. The tender of the locomotive and one passenger car fell into a washout about 40 feet deep. The car rested endwise on the tender, and was thereby kept from being partly submerged. The engineman, and one passenger were injured, and about 20 other passengers were considerably bruised. A westbound passenger train had passed over the road in safety only 30 minutes before this accident happened.

The train involved in the accident near Electra, Tex., on the 22d, was a northbound freight. The locomotive was badly damaged, but not thrown off the rails, by the explosion of its boiler. The train ran about 400 ft. after the explosion before it was stopped. The fireman and one brakeman were killed and the engineman was fatally injured.

Why Track Laborers Quit*

THE CHICAGO, ROCK ISLAND & PACIFIC has, for several years, maintained a record of the length of service, and reasons assigned by track and construction laborers for leaving its service in its Chicago district. Unfortunately, the true reasons are not always given and the figures can only be taken as pointing to the probable cause; the desire for ready money is more frequently the reason. Laborers will

*Abstract from the report of the committee on economics of railway labor of the American Railway Engineering Association, and published in Bulletin 202.

STATEMENT OF "HORO" LABOR
By Months from June 17, 1916, to December 16, 1916, and May 26, 1917, to October 20, 1917.

Months 1916	Number employed	Number time checked	Average days in Service	Reasons given for leaving													Nationality								
				Sick	Need money	Need clothes	Poor food	Poor water	Too hot	Too cold	Dissatisfied	Work too hard	Better job	Joined army or navy	Laid off	Discharged	Miscellaneous	American	English or Scotch	Irish	Swede	German	Slav	French	Italian	African
June	114	44	4.5	4	9	6	7	...	...	...	3	9	...	...	...	2	6	21	...	11	1	6	5	...	...
July	575	386	4.5	47	69	15	86	...	52	...	25	18	...	...	...	2	72	97	...	139	45	59	43	1	...
August	590	371	3.5	66	52	12	40	23	57	...	27	41	...	...	...	2	51	89	...	155	33	50	40	2	...
September	527	251	5.9	59	33	11	8	...	2	...	37	16	11	...	...	...	74	68	...	87	30	32	33	...	...
October	395	180	4.9	32	22	33	16	...	...	...	7	6	10	...	...	3	51	43	...	78	16	29	11	1	...
November	415	183	5.1	30	21	28	2	...	1	14	17	6	...	...	...	4	60	44	...	60	25	26	26	...	...
December	258	131	5.4	12	8	12	5	...	...	16	2	1	17	...	...	...	58	26	...	43	26	22	14	...	...
Total	2,874	1,546	4.8	250	214	117	164	23	112	30	118	97	38	...	...	11	372	388	...	573	176	224	172	4	9
1917																									
May	40	4	1.5	...	2	...	...	...	...	...	...	2	...	...	...	...	...	1	...	...	...	1	...	...
June	435	190	12.6	22	32	7	9	...	...	...	21	3	28	...	27	8	23	36	3	73	9	7	...	2	...
July	391	169	11.5	15	22	8	7	...	10	...	26	...	10	2	21	...	48	21	4	90	3	11	6	...	...
August	308	110	20.4	25	13	1	8	...	2	...	20	1	18	2	10	1	9	36	2	48	2	7	8	...	...
September	300	167	10.5	27	31	4	17	...	...	...	34	3	16	3	8	4	20	45	3	64	7	10	16	1	...
October	275	146	9.2	31	42	8	5	...	...	8	14	1	9	...	1	2	25	23	2	40	5	7	9	1	...
Total	1,749	786	11.0	120	142	28	46	...	18	8	115	10	81	11	67	15	125	162	15	315	26	42	42	4	37
Grand total	4,623	2,332	7.9	370	356	145	210	23	130	38	233	107	119	11	67	26	497	550	15	888	202	266	214	8	46
Per cent to "Number time checked"				15.9	15.3	6.2	9.0	0.9	5.6	1.7	10.0	4.6	5.1	0.5	2.9	0.9	21.4	23.6	0.6	38.1	8.7	11.4	9.1	0.4	2.0

leave and return to the same job in the course of a few days; the lost time being spent in idleness. Co-operation between railways and local authorities and better housing and working conditions would greatly ameliorate this condition. It will be noted in the statement that the average length of service for 1917 is materially increased over that of 1916. This is in part due to improved boarding and housing facilities.

A War-Time Fuel Conservation Campaign on the Northern Pacific

THE NORTHERN PACIFIC is now pushing a unique fuel conservation campaign, consisting of lectures with moving pictures and demonstrations, given daily to employees and to all others interested in the subject, in a car especially equipped for the purpose. From the large attendance and interest displayed this educational work has been found to produce good results. The present campaign will extend over a period of three months, during which time consumers of fuel in all the states through which the road passes, will be appealed to as well as employees of the railroad company.

At a number of cities, school children have been brought to the instruction car as a special feature in the course of their training. In many of the cities visited an open session for the public is held in a large hall, which is arranged for by the commercial clubs. Those attending the

fuel but make the work easier as well. The proper combustion of gases in the firebox is treated by demonstrations which leave no question in the minds of those who see them as to the conditions necessary for the best results. As from 35 per cent to 50 per cent of the heat value of soft coal may be derived from the volatile combustible matter (the gases) a great loss of heat occurs when any considerable amount of the gases escape unburned. Opportunity for saving fuel lies principally in the burning of the free hydrocarbon gases.

It is pointed out that the most efficient fireman is the man who carries a light, even fire, also that the popping of safety valves, loss of coal from overloading tenders, kicking coal from the gangways, etc., are willful wastes of fuel and unpatriotic acts. As fuel is war power required to keep munition factories running, armies and navies supplied and transportation units moving, all are under obligation to save it, because victory in the war depends just as much on those who remain at home as on the boys in the trenches. To add to the interest of the lecture and to appeal to the patriotism of those in attendance, moving pictures of soldiers are shown, including a number of moving-pictures of actual trench-life and battle scenes taken in France.

The public press in the cities visited has taken a lively interest in the work of the fuel conservation campaign and newspapers have unstintingly furnished space in their desire to place the necessity of fuel conservation before the public. This patriotic co-operation has greatly assisted the work of reaching the public effectively. Pamphlets prepared by the railroad concerning the economical use of



Views in the Northern Pacific's Fuel Conservation Car

meetings are impressed with the fact that our country will require, during the first year of the war, not less than 100,000,000 tons of coal more than we have ever produced in one year; that it is not expected the production will meet the demand; and that it is expected that every one will do his bit in saving fuel in order that our military operations and those of our allies may be successful.

For the benefit of the railroad men it is brought out that the roads in the United States will require about 130,000,000 tons of coal for this year's work and that probably 25 per cent of the total fuel tonnage handled by the roads will be used to operate the roads. It is explained that this offers a splendid opportunity for railroad employees who handle coal to contribute their share in winning the war by using as little coal as possible, not wasting any themselves nor permitting others to waste it.

The cinematograph shows good and bad practices in locomotive and stationary plant operation. Black smoke is clear evidence of waste, and employees are instructed to follow light firing methods, which not only save considerable

fuel in heating buildings are also freely distributed at the lectures.

When the Northern Pacific fuel conservation campaign is finished it will have given practical demonstrations and carried the message of fuel conservation by word and illustration to thousands of persons who handle millions of tons of coal each year.

NEW RAILWAY IN TRAVANCORE, INDIA.—A new line of railway, 38 miles long, connecting Quilon and Trivandrum, two small seaports in Travancore State, South India, was opened to traffic on January 1. This will link up the east with the west coast in a part of the country that has been more or less isolated from the rest of India. Quilon has heretofore been the terminus of the Travancore branch of the South Indian Railway, a trunk line from Madras extending over 1,700 miles in peninsular India. The peculiar engineering difficulties in the Paravoor and Kilimukku Lakes greatly increased the cost of construction of the line, which ultimately came to \$1,751,940.—*Commerce Reports*.

Short Line Railroads Object to Being Left Out

AT A CONFERENCE of representatives of the short line railroads from all parts of the country held at Washington on April 11 and 12, plans were laid for a vigorous campaign to have carried out what the short line representatives believe was the intention of Congress when it passed the railroad bill, that the independent short line railroads should be made a part of the federal railroad system. The law division of the Railroad Administration has taken the position that, under section 14 of the act, it may exclude such lines at any time before July 1.

Under resolutions adopted at the meeting, an executive committee representing the entire field of short line industry was appointed to carry out the directions of the conference and to sit at Washington continuously until July 1, or for as long as may be necessary, for the purpose of assisting interested lines in their negotiations with the government. The resolutions under which the committee is acting are as follows:

"Whereas, Congress, by an Act approved March 21, 1918, entitled 'An Act to provide for the operation of transportation systems while under Federal control,' has declared (in effect) that every railroad not owned, controlled, or operated by a trunk line was and is under federal control and thus, for the period therein fixed, made part of the trunk road or system line with which any such road connects, but conferred on the President power, prior to July 1, 1918, to relinquish control of any trunk or system line together with such short road or roads as may connect therewith, and

"Whereas, it was the intent and purpose of Congress to make all such independent, or short, roads a part of the federal controlled railroad system, so that such short lines might continue to exist and be enabled to perform important public service under war conditions, and

"Whereas, the Railroad Administration now construes said law as giving power to the President to exclude from federal control any or all short lines while continuing to operate the trunk line or lines with which they connect, and the said Railroad Administration has advised that it would not exercise jurisdiction or control over the short roads of continental America but, to the contrary, has informed the owners of such roads that the question of whether or not they shall be used as part of the federal railway system is yet to be determined, and

"Whereas, the short line roads are already suffering a great loss by being compelled to operate independently from the trunk lines now operated as the government railway and such losses, if continued, must and will force a great number of such roads now filling important economic positions in the transportation system of the United States to completely suspend operations so long as the government continues to operate the larger roads as a government utility, and such suspension will result in financial ruin to such roads and great and irreparable damage to the many communities and industries they now serve—

"Now, therefore, be it resolved, as the sense of this Conference—

"1st. That we hereby appeal to the Railroad Administration, both as representatives of the short line roads and as citizens loyal to the great cause in which our country is engaged, to reconsider the idea of releasing, save by mutual agreement, any short line road so long as the trunk line with which it connects is operated by the government. With our country at war there is and should be a place for every citizen and every industry able to perform any sort of substantial service. The ruin of the short line roads or any one of them when considered along with the loss to the communities served and the banks and citizens whose money

was invested on the faith of pre-war conditions, will go far beyond any loss the government might sustain from operating the short roads. Any other policy than one which shall earnestly and honestly seek to conserve these industries for their usefulness in the present as well as the future is unwise and shortsighted. The saving of a dollar which has been collected into the government treasury cannot justify the wastage of five dollars or ten dollars of the general wealth of the Nation.

"2nd. In order that this appeal to the Railroad Administration may be fully and fairly presented and the policy of said administration toward the short roads definitely ascertained; and, further, in order that all of the other short line problems may be handled as efficiently as possible, it is therefore further resolved, that an executive committee of five representatives of interested lines be appointed by the chairman of this conference, of which committee the chairman shall be a member ex officio, the duties of which committee shall be the following:

"(a) To confer with the Director General of Railroads, or such representative as he may select, and to ascertain and report definitely, the policy of the administration concerning short line railroads.

"(b) If it be ascertained that the fixed policy of the administration is to exclude from federal control without agreement, the short line roads or any number of them, said executive committee shall advise interested lines promptly and shall at once prepare and submit to the members of Congress a full statement of the facts and shall appeal to Congress to correct the manifest economic error involved in such dealings with the short line problem.

"(c) To sit in Washington, D. C., continuously until July 1, 1918,—or such portion of this time as may be necessary—for the purpose of assisting interested lines in their negotiations with the government.

"(d) To levy assessments equitably against interested lines for the purpose of providing for the reasonable expense of such committee, a statement of the receipts and disbursements to be furnished monthly for the information of interested lines.

"(e) To do all other things, herein not specifically mentioned, to the end that short line roads shall be of the greatest possible assistance to the government in this crisis, and in turn that the government shall omit no possible fairness in its handling of the short line problem.

"3rd. There is very great need of an officer or department in the Federal Railroad Administration to deal solely with the short line railroad situation. There are about 800 short line railroads in the United States, with problems and conditions peculiar to themselves. The great trunk line problems fall largely into well defined classes, whereas the short line problems cannot be dealt with in classes, and the solution of one problem of a short line would probably not be applicable to many other short lines. In addition to the wide variance between short line and trunk line conditions, there are such a large number of short lines in the United States that it is physically impossible for the federal railroad machinery as now organized to deal effectively and satisfactorily with the short roads. Coupled with this situation there are thousands of security holders and creditors of short line roads and a great number of communities served by such roads who are much concerned over the fact that their problems are being solved largely by trunk line representatives and we believe the appointment of an experienced short line representative would go a great way towards allaying this feeling of alarm now abroad in the Nation. There should be selected at once a man of extensive short line experience who should be made Director of Short Lines, or given some other similar title, with power to immediately organize an efficient department to the end that the short line situation may be handled as effectively, promptly and sympathetically

as the trunk line situation is handled. Very much doubt and uncertainty exists at the present time and if no new machinery is created for the disposition of the short line problem this doubt and uncertainty will probably continue for too long a period after settlement of the government problems with the trunk lines. Some of the problems peculiar to short lines that must be dealt with rationally and effectively are the question of just compensation for the use of short lines (which requires careful investigation and analysis in each case); the matter of wage adjustment in each case, and proper operation, bearing in mind consistent and sufficient service; and, most of all, the financial requirements of the short lines, which must have careful study and wise decision."

Pursuant to these resolutions, the committee has addressed a circular letter to the short line railroads of the country pointing to what is termed "the gravity of the economic error" involved in the relinquishment of any material number of short lines from federal control and the vital necessity of every short line railroad lending its unqualified and whole-hearted support to the cause of the short lines. Also a post-card questionnaire has been sent to the short lines asking whether they approve of the conference action and the appointment of the committee, whether they approve the committee's urging the appointment of a short line railroad man to the staff of the director general, and whether they will lend active moral and financial support to the movement. The executive committee is as follows: Ben. B. Cain, chairman, vice-president and general manager Gulf, Texas & Western, Dallas, Texas; John W. Powell, vice-president and general manager, Virginia Blue Ridge, Washington, D. C.; Henry I. Moore, vice-president, Salt Lake & Utah Railroad, Salt Lake City, Utah; Bird M. Robinson (chairman of the Short Line Railroad Conference), receiver, Tennessee Railway, Oneida, Tennessee; W. M. Blount, president, Birmingham & Southeastern, Union Springs, Alabama; C. D. Cass, general manager, Waterloo, Cedar Falls & Northern, Waterloo, Iowa.

The American Short Line Railroad Association, which has heretofore been leading the campaign of the short lines and which represented them during the hearings on the railroad bill before the congressional committees, was represented at the conference by its officers and 40 of its members. The Short Line Railroad Association was represented by its attorney and representative at Washington and by several delegates. The Western Association of Short Line Railroads

was represented by Henry I. Moore and a telegram pledging co-operation was received from the president. The conference held at the time of the meeting with John Barton Payne, general counsel of the Railroad Administration, was noted briefly in last week's issue. The official account of the proceedings of the conference, which has since been issued, gives the following statement of the position of the Railroad Administration as announced by Judge Payne:

Judge Payne stated that he construed the act to mean that all short lines and other railroads were under government control, but that Section 14 of the act gave the President authority to relinquish to its owners any railroad, prior to July 1, 1918, and in the meantime that the Railroad Administration will not exercise jurisdiction over any short line until the question as to whether they shall be retained under federal control shall have been determined.

In reply to questions propounded by Chairman Robinson, Judge Payne said that:

Some short lines had been relinquished at their own request, but that no decision had been reached as yet to eliminate any other line;

Instructions had been issued to the regional directors to investigate the conditions of every short line and the conditions surrounding it, and that they were now engaged in making these investigations;

When the recommendations of the regional directors were received, he would consider them carefully and notice of the decision as to each line would thereafter be sent to the owners.

He said further that it was the intention of the director general to retain all lines that would be serviceable to the government in the prosecution of the war, but that he did not intend to retain any line that was not serviceable for their purpose; and he would grant an oral hearing to any line that desired to be heard, in the event that it had been decided, or was about to be decided, to relinquish such road from federal control to its owners.

He could not express an opinion as to how independent short line railroads could hereafter purchase equipment, as that would depend upon the showing made by each road.

The divisions of through rates would not be disturbed except by affirmative action on the part of the Railroad Administration.

He could not now express an opinion as to whether shippers' routing of freight and traffic contracts would be recognized.



Central News Photo Service

A Busy Light Railway Terminal

International Railway Fuel Association Convention

THE INTERNATIONAL RAILWAY FUEL ASSOCIATION, an organization composed of the officers of American and Canadian railway fuel departments and coal operators, recently tendered its services to the government to aid in the effort to stimulate coal production and to enhance economy in its use. This offer has been accepted by the United States Fuel Administration and by the United States Railroad Administration, and those two government departments, in co-operation with the officers of the Fuel Administration, have arranged for a convention to be held in Chicago on May 23 and 24, 1918.

The two government administrations and the officers of the Fuel Administration believe that this convention will provide an opportunity to arouse renewed interest in the fuel problem and to stimulate greater effort on the part of all concerned in the production and use of fuel; and they hope to attain these ends through a series of inspiring addresses by representatives of the various interests involved, which, by appeals to patriotism, shall seek to stimulate enthusiasm and to enlist co-operation. The speakers on this occasion are all men of national prominence, whose previous experience or present contact with the fuel situation will enable them to speak with authority to mine operators, mine workers, railway officers, and railway employees. Through the co-operation of the two government bureaus there is certain to be in attendance at this convention a large audience composed of men, who, in their daily work, can directly affect the production of coal, both as regards quality and amount and its economical use on the railways of the United States and Canada. The fact that the railways use nearly one-third of all the coal produced is, in itself, an earnest of the importance which the government attaches to its conservation and to this convention.

Subsequent to the convention, it is intended to distribute very widely to coal operators, miners, railway officials and railway employees the substance of the various addresses, and in this way, as well as by the direct influence of those who have been able to attend, to reach back into the mining industry, and to men on the railroads, and to relay to them something of the inspiration and stimulus which is the chief aim of this meeting.

The general arrangements for the convention are going forward under the direction of C. R. Gray, Director of the Division of Transportation, United States Railroad Administration, and P. B. Noyes, Director of Conservation Division, United States Fuel Administration. The details of the program are being arranged by a committee consisting of E. W. Pratt, president, International Railway Fuel Association; J. G. Crawford, secretary of this association; Eugene McAuliffe, president, Union Colliery Company, St. Louis, Mo., representing the United States Railroad Administration; Major Edward C. Schmidt, representing the United States Fuel Administration and Morgan K. Barnum, assistant to the vice-president, Baltimore & Ohio Railroad.

The program for the convention, as tentatively outlined, is as follows:

Introductory address, E. W. Pratt, President International Railway Fuel Administration.

The Fuel Problem in the War, H. A. Garfield, U. S. Fuel Administrator.

The Railroads and their Relation to the Fuel Problem, C. R. Gray, Director Division of Transportation, United States Railroad Administration.

What Can Be Done for Our Northern Ally, Sir George Bury, Chairman, Canadian Railways War Board.

The Need for Fuel Conservation, P. B. Noyes, Director Conservation Division, U. S. Fuel Administration.

The Coal Operator and His Responsibilities in the Fuel Situation, Edwin Ludlow, vice-president, Lehigh Coal and Navigation Co., Lansford, Penn.

What the Men on the Locomotives Can Do, W. S. Stone, Grand Chief, Brotherhood of Locomotive Engineers.

What the Coal Miner Can Do to Help the Government, the Railroads, and the Men at the Front, John P. White, Labor Advisor, U. S. Fuel Administration.

The Motive Power Department and Fuel Economy, R. Quayle, general superintendent, Motive Power and Car Dept., Chicago & North Western Ry.

What the Coal Operator Can Do To Help Win the War, H. N. Taylor, vice-president, Central Coal & Coke Co., Kansas City.

The Railroad Industrial Army—a Component Part of the American Expeditionary Force and the Allied Armies, W. S. Carter, Director, Division of Labor, United States Railroad Administration.

The Supply and Distribution of Fuel, J. D. A. Morrow, Director, Distribution Division, U. S. Fuel Administration.

Relation of Locomotive Maintenance to Fuel Economy, Frank McManamy, Director, Division Locomotive Maintenance, United States Railroad Administration.

The Transportation Department and Fuel Economy, E. H. De Groot, Jr., Assistant Manager, Car Service Section, Division of Transportation, U. S. Railroad Administration.

More and Better Coal, Eugene McAuliffe, president, Union Colliery Company, St. Louis.

Railway Engineers Commended for Part in Battle of Picardy

SECRETARY BAKER MADE PUBLIC last Friday a cable report from General Pershing, showing the importance of the work done by units of American engineers in the battle of Picardy, and showing that for the period of 13 days covered by the report these forces were almost continuously in action. They were among the forces hastily gathered by General Carey to stem the German advance.

The Americans were in the very thick of the hardest days of the great German drive, and the report from General Pershing embodies a communication from General Rawlinson, Commander of the British Fifth Army, in which the latter declared that "It has been largely due to your assistance that the enemy is checked."

General Pershing's report covers the fighting period from March 21 to April 3. The former date marked the beginning of the Hindenburg offensive along the whole front from La Fere to Croisilles. The text of the report follows:

In reference to mention in summary of activities, noon, March 24 to March 25, of American troops fighting with British armies, and to the daily cabled summary of the battle March 29, 1918, the following has now been established from official reports:

The commanding officer of a United States engineer regiment has received a copy of the following letter commending the action of the troops of his regiment:

"I have received the following from the commanding general, ——— Corps: 'I desire to convey to you and ranks under your orders my admiration of the splendid service which you and they have rendered in connection with corps light railroad. Thanks to the untiring energy of officers, non-commissioned officers and men, who have risen to the occasion in a manner beyond all praise, and their gallantry, much of what might otherwise have fallen into the enemy's hands has been saved.'

"I should like to add my own appreciation of the excellent

services rendered by the officers, non-commissioned officers and men of the light railroad service of this army directorate, in connection with the present operation. Will you be good enough to acquaint all ranks serving under you of the appreciation accorded to their untiring service?"

Details of the work done by the engineers are given in General Pershing's report as follows:

"Certain units of United States Engineers, serving with a British army battalion March 21 and April 3, while under shell fire, carried out destruction of material dumps at Chaulnes, fell back with British forces to Moreuil, where the commands laid out trench work, then proceeded to Demuin, and was assigned sector of defensive line which was constructed and manned by them, thence moved to a position on the line near Warfusee-Abancourt and extending to north side of Bois de Toillauw. The commands started for this position on March 27, and occupied it until April 3, during this time the commanding officer of a unit of United States Engineers being in command of the subsector occupied by his troops. This command was in more or less continuous action during its stay in this position. On April 3 the command was ordered to fall back to Abbeville.

"The casualties during the period March 21 to April 3 were: Officers killed, 2; wounded, 3. Men killed, 20; wounded, 52; 45 men reported missing, but it is believed by the British authorities that they were not all captured, and that many of them were separated from their command and are now with other British organizations. This report of casualties does not consider one detachment of 57 men from which no report has been received."

The commanding general of a British cavalry division sent the following commendatory communication after he had received the commendation of the army commander for the conduct of his division:

"Commanding Officer United States Engineer Battalion,
Engineers:

"As the United States Engineer Battalion was fighting

your command fought most gallantly alongside the British cavalry. I am most grateful to you and the unit under your command for the invaluable assistance you gave us on March 30, 1918. Please convey my thanks and congratulations to all ranks.

(Signed)

"Major General Commanding ——— Cavalry Division."

The Commanding General of the British ——— Army commended these troops in a communication as follows:

"Army, April 1st, 1918.

"Colonel ———, Lt. Col. Engineer, commanding ——— Regiment, United States Engineers:

"The army commander wishes to reconvey officially his appreciation of the excellent work your regiment has done in assisting the British army to resist the enemy's powerful offensive during the last ten days. I fully realize that it has been largely due to your assistance that the enemy is checked, and I rely on you to assist us still further during the few days which are still to come before I shall be able to relieve you in the line. I consider your work in the line to be greatly enhanced by the fact that for six weeks previous to taking your place in the front line your men had been working at such high pressure erecting a heavy bridge over the Somme. My best congratulations and warm thanks to you all.

(Signed)

"RAWLINSON,
"General Commanding."

Weekly Reports of Railroad Earnings

THE RAILROAD ADMINISTRATION has inaugurated a series of weekly reports of railroad operating revenues from some of the leading systems of the country for the purpose of obtaining prompt information as to the general trend of conditions. Two of these reports compiled by the Bureau of Statistics of the Interstate Commerce Commission

OPERATING REVENUES OF STEAM ROADS

Name of road	Operating Revenues, 2nd week in April			Operating Revenues, 1st and 2nd weeks in April combined		
	1918	Same period last year	Per cent of increase or decrease (D)	1918	Same period last year	Per cent of increase or decrease (D)
Eastern District:						
Baltimore & Ohio R. R.	\$2,588,000	\$2,315,000	11.8	\$4,960,000	\$4,620,000	7.4
Boston & Maine R. R.	1,262,000	984,000	28.3	2,353,000	2,094,000	12.4
Erie R. R. (Including Chic. & Erie R. R.)	1,522,000	1,433,000	6.2	2,928,000	2,837,000	3.2
New York Central R. R.	4,359,000	3,908,000	11.5	8,182,000	7,785,000	5.1
New York, New Haven & Hartford R. R.	1,686,000	1,691,000	(D) 0.3	3,368,000	3,338,000	0.9
New York, Philadelphia & Norfolk R. R.	133,000	88,000	51.1	258,000	178,000	44.9
Pennsylvania R. R.	6,022,000	5,485,000	9.8	11,929,000	11,141,000	7.1
Pennsylvania Lines West of Pittsburgh	3,016,000	2,755,000	9.5	5,845,000	5,483,000	6.6
Philadelphia & Reading Ry.	1,293,000	1,138,000	13.6	2,553,000	2,176,000	17.3
West Jersey & Seashore R. R.	146,000	149,000	(D) 2.0	312,000	323,000	(D) 3.4
Total	\$22,027,000	\$19,946,000	10.4	\$42,688,000	\$39,975,000	6.8
Southern District:						
Illinois Central R. R.*						
Norfolk & Western Ry.	\$1,231,000	\$1,236,000	(D) 0.4	\$2,473,000	\$2,425,000	2.0
Seaboard Air Line Ry.	679,000	557,000	21.9	1,369,000	1,106,000	23.8
Southern Ry. System	2,521,000	2,183,000	15.5	5,061,000	4,356,000	16.2
Total	\$4,431,000	\$3,976,000	11.4	\$8,903,000	\$7,887,000	12.9
Western District:						
Atchison, Topeka & Santa Fe Ry.	\$3,458,000	\$3,184,000	8.6	\$6,749,000	\$6,368,000	6.0
Chicago & North Western Ry.	2,011,000	1,819,000	10.6	4,069,000	3,796,000	7.2
Chicago, Burlington & Quincy R. R.	2,486,000	2,265,000	9.8	5,216,000	4,639,000	12.4
Chicago, Rock Island & Pacific Ry.	1,935,000	1,733,000	11.7	3,644,000	3,230,000	12.8
Great Northern Ry.	1,539,000	1,681,000	(D) 8.4	3,068,000	3,199,000	(D) 4.1
Northern Pacific Ry.	1,700,000	1,720,000	(D) 1.2	3,237,000	3,318,000	(D) 2.4
St. Louis-San Francisco Ry.	1,205,000	1,063,000	13.4	2,345,000	2,060,000	13.8
Southern Pacific Co. (Pac. System)	2,610,000	2,393,000	9.1	5,150,000	4,718,000	9.2
Total	\$16,944,000	\$15,858,000	6.8	\$33,478,000	\$31,328,000	6.9
Grand total all roads reporting	\$43,402,000	\$39,780,000	9.1	\$85,069,000	\$79,190,000	7.4

*Report not received.

with the ——— Cavalry Division in the line on March 30, the army commander's congratulatory message applied to them equally with units of the ——— Cavalry Division. It has been brought to my notice that the men under

have now been received. The report for the second week in April and the first and second weeks combined, showing a considerable increase in earnings, is given in the above table.

Latest Developments in Locomotive Standardization

Roads Permitted to Ask for Special Designs for Conditions Not Met by the Standard Types

THE STANDARDIZATION of locomotives has been the subject of conferences held at the headquarters of the Railroad Administration in Washington during the last week. The conference held last Friday was attended by C. R. Gray, director of the division of transportation, by the regional directors, by Henry Walters, who has been in general charge of the matter of locomotive standardization, and by S. M. Vauclain.

The Railroad Administration until this week never officially indicated whether in case an order is placed for the proposed standard locomotives individual lines will be allowed to get locomotives which their management may consider needed to meet special conditions. The Railroad Administration has thrown light on its attitude regarding this point by sending, as a result of the conferences, the following memorandum to the managements of the various lines:

"It is appreciated that there are special conditions upon some railroads, in which there is an unusual or unique situation to be met.

"In these circumstances it is understood that any such railroad is privileged to make representation to the director general as to its individual necessity for a departure from the standard type."

It is obvious that the effect which the principle enunciated in the foregoing will have upon the locomotive situation will depend on how broadly the principle stated is interpreted and applied. Strictly interpreted, it would mean that only a few railroads having very special conditions or unique situations would be furnished with any locomotives departing from the standard type. On the other hand, broadly interpreted, it might result in all railways having special conditions being allowed to get locomotives adapted to those special conditions. Now, as there is hardly a railway management which has not believed in the past that it had had "special conditions" on at least part of its lines, the broad interpretation of the principle would result in the ordering of many locomotives besides the standard locomotives.

While the Railroad Administration has by this memorandum conceded that it is desirable to have locomotives which best meet the physical requirements of the roads, it would appear that the problems of maintaining the standard locomotives have not been given the consideration they deserve. The committee of builders appointed by S. M. Vauclain on instructions from the director general made certain statements and recommendations in its first report which never heretofore have been made public. This report was handed to Mr. Vauclain on February 19. The statements and recommendations referred to were as follows:

"Inasmuch as there are now, approximately, 70,000 locomotives in service on the railways of this country, it would seem desirable to call your attention to the care and study which should be given to the working up of any plan of future standardization, in order to obtain the greatest possible economy in maintenance and to preserve, as far as advisable, the existing railway standards. Under the conditions existing in the past, it has always been considered advisable when designing a new locomotive for any particular road to have consultations with the motive power officials so that the design could be best worked out to suit the particular shop methods and facilities for repairs on that road. If we are to be called upon to work up standard classes of locomotives suitable for all the railways of the country, we believe the

same care should be taken and numerous consultations with the motive power officials would be necessary in order to secure the best results. After these consultations, there still remains the actual working out of each detail on the basis of providing the greatest interchangeability with present standards.

"While it may be said, and truly so, that these standard designs could be rushed out quickly and the building of locomotives from them accomplished within a few months, if this is done the factors just mentioned cannot be taken into consideration, and within the limits of time given, and effort would have to be directed toward standardizing the details among these new types proposed without any reference to the standards now in use. This, in our opinion, would not be advisable, and we feel that the proper execution of such a series of standard designs cannot be carried out in time to permit the building of any of these locomotives for 1918 delivery. As the builders now have a considerable amount of untaken capacity for this year, we would respectfully suggest that if it is your desire that this year's full capacity be utilized, the railways be permitted to order for quick delivery, or until these standard designs can be worked out, such locomotives as they require exact duplicates of those now in service on their lines. This can be done without in any way retarding the progress in the direction of the standardization which you suggest."

It would seem that this part of the report has been ignored and there is reason for doubting whether it ever reached the director general, although it was addressed to him. It will be seen from the foregoing that the committee of locomotive builders recommended that no effort be made to build any standard locomotives for delivery in 1918.

Present indications are that about 1,000 of the standard locomotives will be bought at first and that they will be intended primarily to serve as a flying squadron which can be used on the lines which have not enough locomotives to handle all the traffic which must be moved over them.

It is estimated that there are now about 600 engines in service on foreign lines. As the standard locomotives are delivered it is probable that they will replace these foreign engines and that the foreign engines will be returned to the home lines. While the foreign engines have been taken from numerous railways, they are being used on a comparatively small number of lines. Therefore, if the standard locomotives are used mainly to replace them, the result will be that in the early stages, at least, they will be used on only a comparatively small number of roads. As a matter of fact, the Railroad Administration does not know where it will send the standard locomotives at first, but it is considered by some officers of the administration that it will be logical to send home as rapidly as possible the engines that are now off the lines of the owning roads and to replace them with the standard locomotives.

The interchange of power is a questionable practice at any time. Under existing conditions, however, it has been found necessary. If standardization is considered at all, it should apply only to such locomotives. *And only that number which is necessary for a liquid reserve should be built.* Roads requiring new power should be furnished locomotives which best meet their needs and which they are prepared to maintain. The lack of sufficient shop and enginehouse facilities is the main reason for the pres-

ent lack of motive power. To further burden the maintenance forces which are already overtaxed, by calling upon them to handle power which is strange to them and for which they have not facilities to repair, is to still further increase the heavy load they are now called upon to bear.

The question of standardization is by no means settled. It is a well-known fact that neither the soundness of the principle of standardization nor the desirability of its application on our railways in time of war was thoroughly discussed and fully considered before the standardization program was entered upon. On the contrary, the program of standardization was entered upon somewhat hastily and practically all the consideration and discussion of its desirability have occurred since it was practically decided to standardize. It is difficult to find many experts, either among the locomotive builders, on one side, or among the railway men on the other, who unreservedly express belief in the principle of standardization of locomotives, while it is easy to find many experts, both builders and railway men, who do not believe in it.

In these circumstances future developments will be followed with much interest. Probably whether additional locomotives of the same types or of other standard types will be ordered will depend to a considerable extent on the results secured with these locomotives. The Railroad Administration intends to appoint a special committee to study the results of the operation of the standard locomotives. One thing seems certain and this is that the principle of standardization of locomotives has not been finally established even for the period of government control and the future developments and discussion have yet to determine whether it will finally become firmly established.

The Railroads' Liberty Loan Campaign

"I HOPE THAT EVERY RAILROAD EMPLOYEE in the United States will lend all the money he can, consistently with his individual circumstances, to his government in buying Liberty Bonds," says Director General McAdoo in Circular No. 24 of the Railroad Wage Commission. "They pay four and one-fourth per cent interest per annum and are the safest investment in the world—as safe as the money of the United States and safer than deposits in banks.

In lending your money to the government you not only save the money for yourselves, but you help every gallant American soldier and sailor who is fighting in this war now to save your lives and liberties and to make the world safe for democracy."

With an organization that reaches every employee in railway service, from the presidents down, the railway men of this country are enthusiastically working to take a large share of the total issue of the Third Liberty Loan, and are doing their utmost to live up to their brothers who are making a record for themselves in the railway engineer regiments in France.

The Eastern Committee, of which President Underwood of the Erie is chairman, reports that the Liberty Loan campaign is making fine progress on the railways of the eastern regional district. Details as to the number of subscribers and the amounts taken, however, have only been received from a few roads. Up to Saturday night, April 20, subscriptions were reported from 93,509 employees for a total of \$5,971,100.

One of the features of the campaign on the Erie is a Liberty Loan train. This train is now on its way from Hammond, Ind., to Jersey City and will stop at the division points and shops on the route. With the train is the Erie's general office band. General Manager R. S. Parsons

is accompanying the train and he and local speakers will address the Erie employees at the important centers along the route.

Western Railwaymen Take \$30,000,000

In the western regional district, more complete returns have been received, so that on Monday, W. S. Bierd, the president of the Chicago & Alton and chairman of the Western Regional District Committee, was able to report that subscriptions of \$30,000,000, or 1 per cent of the total loan, had been taken by employees in that district.

In the bulletin issued Monday to executive officers of Western railroads, stating this fact, Chairman W. G. Bierd added:

"While the results so far secured are highly gratifying, now that all lines have completed their campaign organizations, it is expected that subscriptions toward the next thirty millions, or an additional 1 per cent of the total loan, should be reported much more rapidly than the first thirty millions.

"All carriers should put forth renewed efforts with this end in view."

Monday's summary showed that 437,645, or 58.08 per cent of the employees of Western roads, had subscribed \$33,387,525 for Third Liberty Loan bonds. The average subscription per capita was \$76.29.

Ten Western railroads had reported up to Monday subscriptions exceeding \$1,000,000. They were:

Road	Per cent of employees	Subscriptions	Average
Chicago, Rock Island & Pacific....	96.22	\$2,689,150	69.21
Chicago, Milwaukee & St. Paul....	74.30	2,461,150	69.84
Northern Pacific	83.58	2,398,450	90.00
Chicago & North Western.....	60.19	2,337,200	71.90
Atchison, Topeka & Santa Fe....	49.43	2,327,350	73.60
Great Northern	58.83	1,987,050	99.35
Missouri Pacific	71.25	1,961,450	70.97
Chicago, Burlington & Quincy....	50.44	1,714,450	73.51
Union Pacific	55.21	1,172,800	73.88
Southern Pacific	33.21	1,109,850	71.90

Seventy-two railroads reported that over 70 per cent of their employees had subscribed to the Third Liberty Loan.

Southern Regional Committee

E. T. Lamb, president of the Atlanta, Birmingham & Atlantic, is chairman of the Liberty Loan Committee which has been appointed for the southern regional district by Regional Director C. H. Markham. The other members of the committee are H. W. Miller, vice-president of the Southern; C. A. Wickersham, general manager of the Georgia Railroad; and W. L. Stanley, assistant to president of the Seaboard Air Line.

Committees of Employees

The Liberty Loan campaign on the railroads has been so well organized that every railway man has been reached by the members of a committee in his department or branch of service. Apparently the work of some of these committees has been as insistent as it has been enthusiastic. The Altoona Tribune, for example, had the following interesting story in a recent issue:

"Twenty-six men in one Altoona machine shop department yesterday placed a strenuous objection with officials when three of their mates failed to acquire war bonds of the present issue. An ultimatum was issued and if the trio continues to ignore the solicitors after 7 a. m. today they must quit or the twenty-six loyalists will.

"Several clerks in one of the offices at the same shops yesterday made it known they weren't going to wear the red-white-and-blue button designating the subscribers to the third loan. A petition was hastily drawn up and all other workers in the office signed it, stating they would resign if the status of the affair wasn't changed favorably."

Torpedoes as Fog Signals on Belgian State Railways

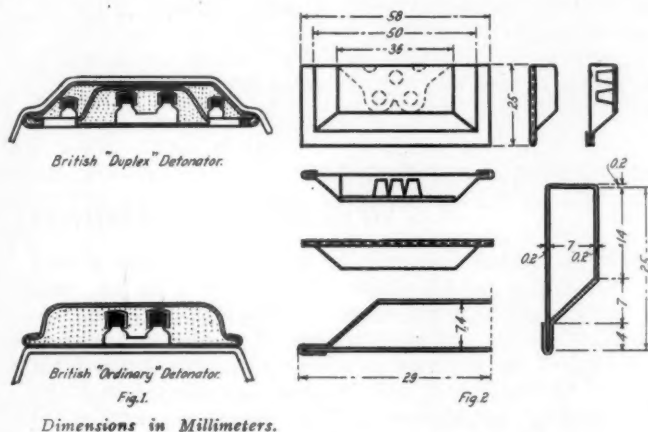
By L. Weissenbruch

Chief Signal Engineer, Belgian State Railways

IN HIS REPORT on the Kirtlebridge accident in 1916, Colonel Pringle, the British Board of Trade Inspector, said that "an unusual and disturbing feature of this case is the assertion by the four enginemen of the postal train that they did not hear the explosion of four torpedoes, which had been laid on the line just before their train approached." The inspector suggested that the Railway Employment Safety Appliances Committee should investigate the question as to the most suitable torpedo for use on railways. The Railway Gazette, of London, in referring to the mat-

of time, which may be months or years. To prevent misfiring, the companies' rules say that torpedoes must be tested every two months and not kept longer than three years. After a careful inquiry, the Railway Gazette, of London, rightly states that there is a source of weakness somewhere. Our experiences on the Belgian State Railways had led us to the same conclusion 15 years before the war.

We found that the cause of the steady and progressive deterioration of the torpedoes was the use of tin cases, which were liable to rust. With the tin, the little and invisible imperfections of the soldering gradually get worse and worse through the rust. The use of brass plates of 0.2 millimeter in thickness (0.079 in.) was found to be efficient and cheap if the case were beaten out of one piece of metal and the ends rolled and folded up on wax cork, as shown in the illustrations in Fig. 2. With such torpedoes it is very easy to form a double signal, but if two torpedoes are placed on the rail close together there is always a liability that the explosion of the first one will blow away the other, during the infinitesimal space of time that the wheel is traveling from one to the other. To overcome this, the holder for the torpedoes is made with an upwardly projecting rib or partition between the two. This rib is formed by suitable press tools with a longitudinal depression or groove on the underside of the holder which raises the metal on the upper side. When the holder is of the pattern used in fog signalling



British Torpedoes—Ordinary Type

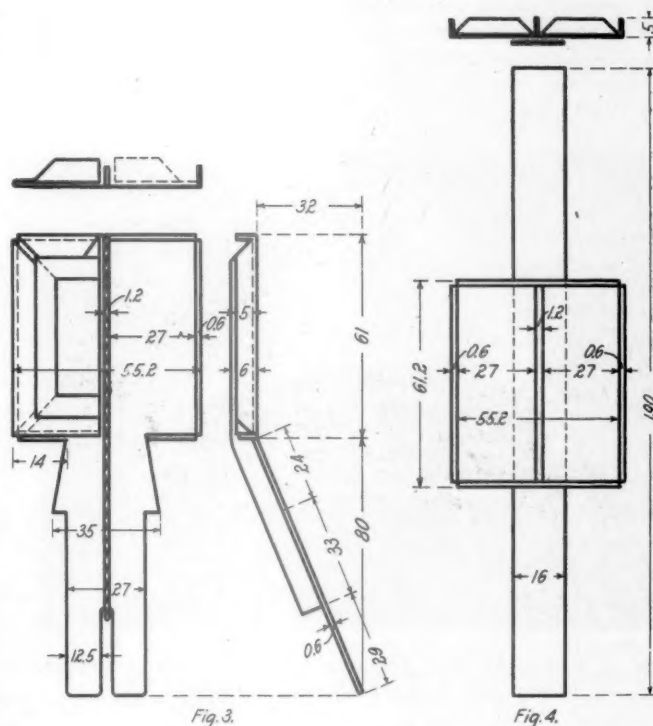
ter in its issue of March 16, 1917, recalled the fact that torpedoes have been used on railways since 1841 and observed that it was surprising that, during all the years that have passed since then, no standard fog signal had yet been produced.

There are two different kinds of torpedoes in use in England, viz.:

1. The ordinary torpedo, made of a watertight tin case containing black shooting powder with three caps of mercury fulminate. In foggy weather or during falling snow, when the enginemen cannot see the signals clearly, it is the general practice, both in England and in Belgium, to maintain two such torpedoes on the track 10 yards apart, some distance in the rear of each distant signal which the fogmen have to repeat.

2. The duplex, or double torpedo, which is really only two signals in one case, and which gives only one report on exploding. The sole purpose of using two torpedoes is to safeguard against one being defective. The duplex renders the task of the fogman easier, and it saves the installation of two machines, where such are employed to avoid the placing of torpedoes by hand. In any case the price of one duplex torpedo is less than that of two ordinary ones. Each English maker has his own pattern of duplex, but, the number of makers being few there are not many patterns and they differ only in details. The duplex torpedo used in England is always a double-chambered signal with three caps in the center chamber and three or four in the annular chamber, the weight of powder being slightly different. In Fig. 1 may be seen illustrations of the two types of torpedoes mentioned.

All the British torpedoes—the ordinary or the duplex—have tin cases, and experience has taught that they become unreliable and cease to be watertight after a certain lapse



New Type Torpedo, Showing Rib

apparatus, having a projecting tang to be held by clips, the rib or partition is continued all along the tang so as to strengthen it. It was found that practically none of the new torpedoes misfired.

The English rule of destroying the torpedoes that had been kept for three years was at first in force on the Belgian State Railways, but the period was gradually extended after 1907, first to 4, then 5 and finally to 15 years. At first the tenders for the new duplex torpedoes were higher in price than for the English tin pattern, but gradually the prices descended to the same level. An additional saving has also been effected by the fact that torpedoes that have been kept in the stores have no longer to be destroyed, but as their

efficiency has a direct bearing on safety, economy is of but secondary importance. Figs. 3 and 4 show the two designs of holders employed, and the central rib mentioned may be seen. All dimensions on the figures are given in millimeters.

Treated Canvas Roofing for Steel Passenger Cars

CONSIDERABLE DIFFICULTY has been experienced in the maintenance of the roofs on steel passenger equipment where steel has been used throughout in the construction. Owing to the action of cinders along the top of the cars there is great difficulty in keeping the steel properly covered with a protective coat of paint. As soon as the paint covering becomes broken or cracked, deterioration of the steel plates begins and proceeds rapidly especially where the joints in the roof plates project above the smooth surface of the roof, due to the formation of sulphuric acid from the action of water on the cinders. It is also a fact that no matter how stiff the construction of a car may be, there is always more or less weaving of the roof, which is evidenced by the condition of the joints in the sheets after they have been in service for some time.

A special type of canvas roofing, the material of which is impregnated with a treatment making it both waterproof and proof against mildew has been furnished for several years by the Tuco Products Corporation, 30 Church street, New York, and much of this material is now in use on



Type of Passenger Roof Construction Using Wood Sheathing and Treated Canvas Covering

wood passenger equipment. In the application of this material the use of white lead is unnecessary, thereby effecting a saving of labor and material. Otherwise, the same practice is followed as with any other canvas roofing, the special advantage being that should the protecting film of paint become cracked, thereby permitting moisture to come directly in contact with the material, it does not deteriorate from mildew as is the case with untreated canvas. Within the past few years a number of railways have adopted a semi-wood roof construction in order to secure the advantages of this type of roof covering, which has demonstrated its advantages through many years of service on wooden equipment.

A type of wood roof construction for steel equipment is shown in the illustration. The tongued and grooved wood sheathing is applied directly to furring strips bolted to the

steel carlines and projecting slightly above their upper surfaces. Intermediate wood carlines are placed between the steel carlines to provide additional nailing strips for the sheathing. The Tuco Standard car roofing is then applied to the sheathing in the usual manner. This construction provides its own insulation, a considerable saving in itself, and also eliminates the troubles with the joints of the metal roof, due to the weaving action and the rapid deterioration of the projecting surfaces caused by the impinging action of the cinders and corrosion. There are now a large number of steel passenger cars on which this or a similar type of roof construction and Tuco Standard roofing has been used.

The treated canvas roofing when properly applied and well sanded is fireproof and serves all the purposes of the steel roof. In addition its life is much greater than that of the steel. Cars with roofs covered with this material are now in service with the roofs in good condition after ten years' service. The material is furnished in three weights, designated as "CC," "AA" and "FF," which correspond to No. 4, No. 6 and No. 8 duck, respectively.

Air Brake Association Will Hold Convention

THE AIR BRAKE ASSOCIATION will hold its 25th annual convention in Cleveland, Ohio, May 7 to 10, with headquarters at the Hotel Winton.

Director Prouty, of the division of public service and accounting of the Railroad Administration, in a letter dated April 23 to President C. H. Weaver, has advised that Director General McAdoo desires to encourage members to attend the convention as it seems to be understood that the Air Brake Association members are the men who are actually on the firing line in keeping the air brake apparatus in a state of perfect efficiency. Transportation is granted to those members in actual work of repairing, maintaining and conditioning air brakes. Leave of absence without loss of pay has also been granted to those members attending.

The work of the convention this year will be directed especially toward greater safety of train movement, less expense of maintenance, and more efficient inspection with a particular effort to put air brakes in a condition to help the roads through the coming severe winter campaign. The important papers to be presented are as follows:

The subject "What Is the Safe Life of an Air Brake Hose?" is presented by a painstaking committee which has made upwards of 50,000 examinations of air brake hose at different terminal and repair points to ascertain, if possible, when a hose actually becomes dangerous if left in service. Porosity of the rubber and rupture of the rubber and fibre frequently cause break-in-tuos of long trains, collisions of the parts running together, frequently throwing wreckage on the opposing track and menacing the safety and lives of other trains due to collisions. The committee's report embodies suggestions as to how accidents may be prevented if due care is taken to remove worn out hose.

"Recommended Practice of the Air Brake Association" is a code of rules covering the installation, maintenance and repair of air brake parts on locomotives and cars. Each year's experience brings information which, if employed, not only reduces the cause of air brake maintenance, but makes it better and produces greater safety.

"Conditioning Air Brakes on Freight Trains to Prevent Troubles Enroute," is the subject of a committee report and embodies detailed instruction to all workers concerned in conditioning air brakes on locomotives and freight cars in yards and shops.

"Maintenance of the 8½-in. Cross Compound Compressor" is a committee report of investigations made in very severe service where compressed air production is absolutely essential to the safe handling of trains down heavy grades. A considerable portion of the paper is given over to recommendations as to length of piping with a view of reducing the likelihood of water getting into the air brake system in winter time, freezing up and causing train accidents.

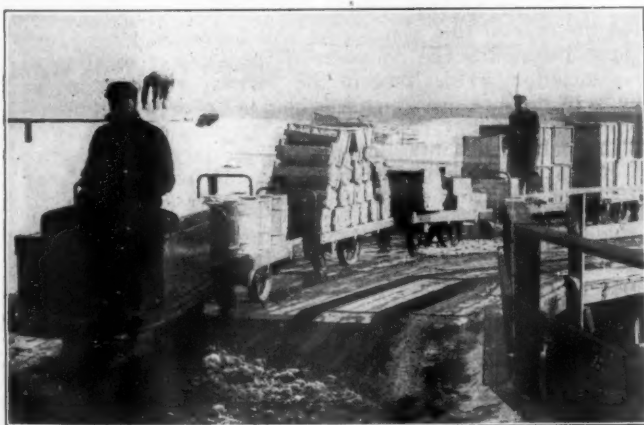
"Preventing Shocks on Long Passenger Trains" is a report prepared after two years' investigation by a large committee composed of the best air brake men on the roads throughout the country. Every phase of shocks coming from brake applications has been investigated, weighed and recommended for.

"Repair and Maintenance of Feed Valves" is an individual author's paper covering his experience of several years' specialist work to maintain feed valves to an accuracy of movement which insures no stuck brakes, wheels skidding, etc.

Improved method of M. C. B. freight brake stencilling, no cleaning, etc., is a recommendation from the North West Air Brake Club, suggesting a betterment of this practice which will enable the work to be done more cheaply, more effectively and with better maintenance results than the old practice.

Eliminating Trap Car Service

WITH INCREASED COMPLICATIONS in large railway terminals there has been a tendency to eliminate the use of standard equipment for the shorter hauls. Trap car service has been found to be uneconomical and slow in certain cases, leading to the use of motor truck service or some other substitute. In other instances traffic congestion has led to specific restrictions on switching and trap car service to permit a greater use of the existing facilities for long haul service. One arrangement undertaken recently has been the use of tractors and freight house trucks to haul



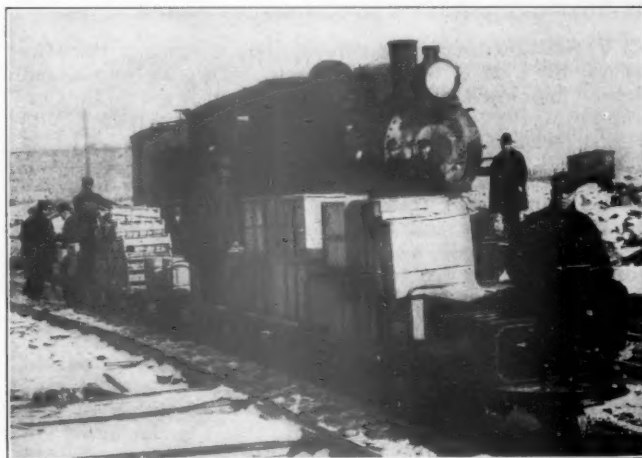
Rounding a Curve on a Two Per Cent Grade

freight from one warehouse to another in Chicago over a distance of 1,678 ft. and thereby eliminate the use of freight cars and the switching service which this transfer would otherwise have involved.

The goods were transferred from government warehouse at Ashland avenue and Thirty-ninth street, for a distance of 678 ft. through this building, across a 1,000 ft. wooden tramway and distributed to their proper storage place in the main warehouse at Thirty-ninth and Robey streets. The tramway was built of 2-in. by 6-in. pine planks and is

just wide enough for two trucks to pass without difficulty. The trucks were loaded in warehouse A, where the tractor hooked onto a train, varying from two to six trailers, and proceeded through the building, across the tramway, up a two per cent grade on a sharp double turn and into the main warehouse where the trailers were dropped at elevators or doorways for final unloading. The tractor was then hooked onto a train of empty trailers, or, as was the case much of the time, a train loaded with material for warehouse A, and the return run was made.

It was figured at the time the various methods were being considered, that it would cost approximately \$4 per car to move this material by railroad and as there were 200 carloads to be moved, the total cost, exclusive of the loading and unloading, would have been about \$800. Instead, five tractor trains were used, each handled by two men who



Tractor with a Six-Car Train

were paid an average of \$3 per day each or a total of \$30 per day. As it required four days to complete the job, the total labor charge was \$120. It cost approximately \$2.50 per day each to operate the tractors, or \$12.50 a day, or \$50 for the four days' operation. At 6 per cent interest on the investment in the tractors, amounting to \$5.64, and with \$2 for depreciation at 20 per cent per year, the total cost of handling the 200 carloads of package material amounted to \$177.64. In all about 2,000 tons were handled at a cost of about 8 4/5 cents per ton. This charge, of course, is for cartage only. The cost of loading and unloading either trucks or cars has not been figured. The equipment used by the government on this job was five Type Z Mercury tractors made by the Mercury Manufacturing Company, Chicago, which were equipped with 30 A-6 Edison batteries each.

AMERICAN RAILROAD MEN IN MANCHURIA.—A despatch of the Harbinsky Vestnik from Vladivostok says that a detachment of 20 American railroad men has arrived here for work on the Manchurian Usuri Railway, in the northeast corner of Manchuria. Many American engineers have been arriving in Siberia to serve on the Siberian railway. By way of experiment, some of them operated trains at Tomsk with a remarkable result. Russian engineers thought that, at best, their American comrades would be able to run 24 trains only during the 24 hours. It was therefore with great surprise and admiration that they found the Americans actually running 70 a day without a hitch. Thanks to their skill, the freight, which had accumulated at Tomsk and neighboring stations, was disposed of in the course of one week.—*The Far Eastern Review* (December, 1917).

General News Department

Snow early this week blocked trains on the Creston, Iowa, division of the Chicago, Burlington & Quincy and on the Rock Island, near Beatrice, Neb.

The Railway Development Association announces that its annual meeting, scheduled to take place in May, has been abandoned on account of the war.

Sir Sam Fay, formerly general manager of the Great Central has been appointed director general of movements and railways, in the British Government, succeeding **Sir Guy Granet**. The director general has a seat on the war council.

C. V. Gallagher, assistant general freight agent of the Minneapolis, St. Paul & Sault Ste. Marie, with office at Chicago, has been appointed western traffic manager of the Grain Corporation of the United States Food Administration, with headquarters at Chicago.

Senator E. D. Smith, of South Carolina, chairman of the Senate Committee on Interstate Commerce, has been elected chairman of the special Joint Congressional Committee on Interstate Commerce, which has been conducting a general investigation of the problems of railroad regulation, succeeding the late **Senator Newlands** of Nevada.

At a meeting of the directors of the Illinois Manufacturers' Association in Chicago on April 23, resolutions were passed lodging a formal protest with the director general of railroads and the regional directors for the abolition of line traffic officers. The resolutions claim that the closing of the offices will inconvenience shippers and is no real step towards economy.

Bids of the car builders have been under consideration this week and orders were expected to be placed on Thursday. The locomotive specialty manufacturers were asked on Wednesday to submit bids by April 29, which they were requested to itemize showing the amount of any royalties on patents. The mechanical committee is to meet on Tuesday to consider final designs for locomotives and of the question of specialties.

Dining cars, hotels and restaurants, of the Southern Pacific, now serve no wheat or wheat products of any kind. This action follows the plea of the U. S. Food Administration for still further conservation of wheat. The Southern Pacific chefs are attending special cooking schools to learn the utmost use that can be made of other cereals. This road serves approximately 6,000,000 meals annually and this discontinuance of the use of wheat will effect a large reduction in the amount consumed.

A fine of \$24,000 has been imposed on the Toronto Railway Company of Toronto, Ontario, for failure to provide new street cars as ordered. This is by the action of the Ontario Railway and Municipal Board. A fine of \$1,000 a day for twenty-four days. The board has adopted this order as a penalty for not placing one hundred new cars on the lines as ordered by the board more than a year ago. This action by the board was made possible by legislation passed at the last session of the Ontario Legislature. The act fixed the maximum fine at \$1,000 a day, and the board imposed it from the time the bill received the assent of the Lieutenant-Governor on March 26 until April 19.

R. H. Kendall, examiner of the Interstate Commerce Commission, is holding a hearing at Chicago this week on the protest of the New Orleans, Texas & Mexico on the tentative valuation prepared by the division of valuation of the Interstate Commerce Commission. Those who have so far testified include: **W. D. Pence**, member of the engineering board, division of valuation; **I. G. Hedrick**, consulting engineer, of

Kansas City; **C. H. Chamberlin**, formerly chief engineer of the Texas & Pacific, and **I. A. Cottingham**, special engineer and chairman of the valuation committee of the Southern Pacific, Texas and Louisiana lines. The hearing will later adjourn to some point on the protesting road to discuss the land matters that are in dispute.

An Associate Statistician, at from \$3,000 to \$4,500 a year is advertised for by the United States Civil Service Commission to fill a vacancy in the Interstate Commerce Commission. The duties of the appointee will be to take charge of statistical investigations and to assist the statistician in planning the statistical work of the Bureau of Statistics. Competitors will not be required to report for examination at any place, but will be rated upon the sworn statements in their applications and upon corroborative evidence adduced by the Commission. They must have graduated from a college or university of recognized standing and have had at least three years' responsible experience in directing economic and statistical investigations; and must show that they have made a general study of railway transportation problems and have had actual experience in railroad accounting, or show by other evidence that they are proficient in handling railroad statistics. Applicants must have reached their twenty-fifth but not their fiftieth birthday, and must file their applications with the Civil Service Commission, Washington, by May 14.

The Liberty Loan

Returns from western railroads received up till noon of April 24 show total subscriptions to the Third Liberty Loan of \$37,353,000, or an increase of \$1,759,000 in the last 24 hours; 465,000 out of 751,000 employees of the western roads have so far subscribed to the loan. The Rock Island system leads with subscriptions for 98.55 per cent of its employees.

Railway Signal Association

The Journal of this association will be issued about June 20, notwithstanding the omission of the summer meeting of the association. This issue of the Journal will contain the minutes of the meeting which was held in Chicago last month, together with such reports of regional committees as may be available. It is the intention of the secretary also to print all reports of standing and special committees which may be received prior to the date of going to press.

Rock Island's Gifts to Its Soldiers

Officers and employees of the Rock Island System have shipped tobacco costing \$324 and flashlight equipment costing \$330 to the former Rock Island men who now compose Company B, Thirteenth Engineers (Railways) in France. Because the train rules under which the men work do not permit the use of ordinary lanterns, it was thought that flashlights would be of service to them. Consequently, equipment sufficient to last the company over a year was forwarded, consisting of 184 flashlights, 1122 extra batteries and 200 Mazda lamps.

Meat Train Schedules on Western Roads

In a circular dated April 17 the regional director of western railroads announced revised schedules for trains carrying packing house products from Missouri river points and South St. Paul and also new rules to apply in handling those trains. Under this order cars must reach the first icing station within 24 hours from the loading platform. The arrangement of schedules to permit re-icing within each 24-hour period will also apply to individual cars moving from distributing centers for distribution.

from the car at one station or by local service to several stations. Investigation of damage claims indicates a lack of attention to the re-icing of cars set out for bad order, and it is ordered that local arrangements be made, if necessary, to re-ice such cars, to prevent loss. Empty refrigerators must be returned to loading points regularly and without unnecessary delays. To economize in transportation and to insure regularity in movement, refrigerator cars should be returned to packing centers in such a manner as will balance the loaded haul.

Loss of Foodstuffs in Transportation

In a recent bulletin E. D. Hawley, superintendent of freight claims of the Pere Marquette, throws light on the extent of losses of foodstuffs in transportation. In a period of eight months that road paid over \$40,000 for loss and damage to food and foodstuffs, as outlined below:

Butter	\$1,721	Meats	\$2,189
Cheese	429	Poultry	572
Eggs	2,283	Grains	5,174
Fruit	1,212	Flour	5,528
Potatoes	4,649	Groceries	5,552
Vegetables	544	Beans	4,700
Live stock	1,334	Sugar	4,229

Mr. Hawley estimates that this loss represented enough provisions to feed 40,000 people for one day or, say, 100 persons for more than a year. Some of this loss, is due to accidental causes, but the greater part is due to carelessness on the part of either shippers and carriers; all avoidable if we could have "safety first" at 100 per cent efficiency.

Women in Railroad Service

The Pennsylvania Railroad now has in its service 6,513 women, an increase of more than 5,000 since May 1, 1917. The number of females in each of several occupations is given as follows:

Clerks and stenographers.....	3,551	Mechanics' helpers	5
Telephone operators	778	Painters	4
Track laborers	293	Hammer operators	6
Messengers and assistant messengers	192	Turntable operators	2
Typists	121	Power operators (electrical)	7
Machine hands	29	Coal inspector	1
Draftswomen	20	Total	5,009

The number of women now employed on prominent English roads is given in a recent statement as follows:

London & Northwestern.....	8,392	Northeastern	8,520
Great Western	6,174	Great Central	3,200
Midland	9,000	Glasgow & Southwestern.....	1,202

The Midland has increased its forces by 2,700 since last July. Over 1,000 of the women on the Northeastern are employed in the shops, making shells.

To Expedite Movement of Government Lumber Orders

In order to insure the filling of government orders for spruce and fir lumber the regional director of western railroads has notified railroads in Idaho, Oregon and Washington that all shipments made on government orders must be accepted and moved promptly to destination; and mills working on government orders must be furnished cars sufficient to move as much of their side cut as may be necessary for continued efficient operation of their plants. No car loaded by a mill on a commercial order shall be re-consigned, nor shall such a car be loaded until assurance has been given that it will be promptly unloaded at destination. Side cuts, consisting of commercial lumber from any one mill, shall not exceed two cars for one car of government orders; and must be further limited to such shipments as may be necessary for continued efficient operation of the plant.

Responsibility for determining what cars shall be furnished under the above-mentioned conditions and the places where and the times when they will be needed has been entrusted to a committee representing the government, composed of Col. Disque, Col. Bloedel and H. B. Vanduver. This committee will discharge its responsibility through requests made by it upon J. C. Roth, or some other authorized representative of the Car Service Section of the Railroad Administration. The committee and the Car Service Section will at all times work in close co-operation, to the end that the Railroad Administration may be promptly advised of the need of cars.

Safety Council Meeting

The executive committee of the Steam Railroad Section of the National Safety Council met in Washington, D. C., on April 2. J. T. Broderick, supervisor of special bureaus of the Baltimore & Ohio and chairman of the accident causes committees, exhibited a report showing in detail the ten most prolific causes of injuries in the transportation, maintenance of way and mechanical departments. R. S. Jarnigan, assistant to the general safety agent of the New York Central lines and chairman of the grade crossing and trespassing committee, reported that all city ordinances and rules of public service commissions and laws passed during the past year affecting safety in transportation have been abstracted for presentation to the annual congress of the Council next fall.

H. W. Belnap, manager of the Safety Section, Division of Transportation of the United States Railroad Administration, attended the meeting and outlined the relation of the Safety Section to individual railroads. He told of the appointment of regional representatives to supervise safety work as heretofore noticed in the *Railway Age*.

C. H. Blakemore, chairman of the safety commission of the Norfolk & Western and chairman of the membership committee, reported the receipt of the following additional memberships: the Georgia & Florida, the Augusta Southern, the Louisiana & Northwest, the Pacific Great Western, the Pittsburgh, Allegheny & McKees Rocks and the Lake Champaign & Moriah. It was announced that questionnaires sent out by the Council in the future will be handled by the officers of each section. They will be mailed out one at a time, separate from the bulletins, and in no case oftener than every two weeks. The meeting of the executive committee was held under the direction of H. J. Bell, chairman (safety inspector of the Chicago & North Western) and C. M. Anderson, secretary (superintendent of safety of the Nashville, Chattanooga & St. Louis).

Recent Circulars Issued by M. C. B. Association

Circulars No. 28 to 33 inclusive, were issued on March 20 by the executive committee of the Master Car Builders' Association.

Circular No. 28 calls attention to the absolute necessity of having all cars equipped with safety appliances by September 1, 1919 and points out that in order to accomplish this it will be necessary and advisable to equip empty foreign cars when passing over the regular freight car repair tracks. The equipment can thus be applied without undue detention to the car. Under the provisions of Rule 33, the repairing line may be reimbursed for the expense of equipping cars with these appliances.

Circular No. 29 is an answer to the question which has been raised as to how the braking power at the brake shoe should be figured in the specifications regarding the adjustment of hand brake power on tank cars.

Attention is called in Circular No. 30 to the necessity from the standpoint of safety that all axles purchased should conform fully to the standards of the association. Axles are being made and offered to railroads which do not conform to the M. C. B. standards. They are made full at the center and hub, but between these two points are under standard size. The circular contains an illustration of the axle in question, that of 100,000 lb. capacity, showing in broken lines the outline of the rough forge axles which are being offered.

In circular No. 31 the executive committee announces the discontinuance of the requirements of circular No. 20, asking for reports as to the number of cars held for material ordered from the owners.

In circular No. 32 is announced an extension of the date after which the requirements for the adjustment of hand brake power on tank cars, set forth in circular No. 22, become effective. The extensions are: (1) On new equipment built after July 1, 1918; (2) on existing equipment by January 1, 1921.

In circular No. 33 the executive committee asks for a statement from the various railroads showing the location on each road of all triple valve test racks which fully conform to the standard requirements of the association for testing triple valves.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY, 1918

Name of road.	Average mileage operated during period.	Operating revenues.			Maintenance of way and structures.			Operating expenses.			Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decrease) income comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equip-ment.	Traffic.	Trans- portation.	General.	Total.				
Arizona Eastern	377	\$292,654	\$50,172	\$342,826	\$60,581	\$45,114	\$2,488	\$82,734	\$14,932	\$211,107	\$17,770	\$139,502	\$49,970	
Atlantic & St. Law.	166	132,060	22,170	154,230	39,850	33,129	4,024	167,761	6,783	244,547	11,346	86,024	55,014	
Atlantic City	170	102,608	68,348	170,956	29,610	67,410	1,037	122,045	1,315	222,045	11,300	48,753	35,197	
Belt Ry. of Chic.	31	.....	.....	.....	42,217	40,449	282	158,884	7,989	249,821	13,929	102,317	125,416
Bingham & Garfield	36	253,862	4,517	258,379	38,086	38,741	1,399	137,700	1,399	137,700	9,565	117,084	125,416	
Cent. of Ga.	1,918	989,732	399,592	1,389,324	209,170	258,235	40,265	572,520	44,000	1,125,036	64,780	352,965	95,827	
Cent. Vermont	411	221,739	60,027	281,766	45,361	77,230	8,823	252,403	10,387	362,827	17,400	98,606	145,437	
Ches. & O. Lines	2,478	2,671,904	506,425	3,180,329	502,041	958,633	51,761	1,817,024	98,334	3,452,886	145,000	55,551	1,288,979	
Chicago & Eastern Ill.	1,131	920,035	246,415	1,166,450	231,576	574,684	24,365	753,694	44,403	1,636,505	79,637	509,086	687,921	
Chgo., Det. & Can. Gd. Trk. Jct.	60	58,364	14,481	72,845	8,201	24,275	1,732	67,004	1,995	103,207	3,345	12,046	9,721	
Chicago Grt. Western	1,496	725,011	307,270	1,032,281	269,243	44,970	622,049	622,049	39,311	1,150,319	60,279	70,125	331,450	
Chicago, Ind. & Louisville	654	308,517	121,920	430,437	97,746	176,722	16,285	302,130	21,485	614,992	31,564	15,542	345,112	
Cin., Ind. & Western	321	149,848	37,667	187,515	208,688	19,950	42,528	106,365	8,797	183,860	9,241	15,586	47,921	
Cin., New Or. & Tex. Pac.	337	490,666	277,585	768,251	78,425	269,989	24,948	409,830	21,780	812,238	38,861	454	341,946	
Coal & Coke	197	70,312	19,586	89,898	15,701	31,575	1,298	56,158	4,289	109,081	5,000	17,763	33,623	
Colo. & Southern	1,103	746,122	174,775	920,897	73,230	167,717	8,736	363,259	30,453	648,198	45,000	296,733	95,299	
Del. & Hudson Co.—R. R. Dept.	878	1,790,360	215,061	2,005,421	282,839	777,430	22,136	1,233,912	90,769	2,401,912	66,640	351,446	712,560	
Del., Lackawanna & Western	955	3,168,337	696,303	3,864,640	282,414	802,067	68,325	2,215,996	94,259	3,501,637	234,661	656,824	762,732	
Detroit & Mackinac	381	44,439	22,106	66,545	15,921	22,983	3,118	50,412	6,888	99,322	7,019	33,513	34,591	
Det. & Toledo Shore Line	80	110,279	.....	110,279	8,890	11,503	1,378	51,615	3,541	76,927	8,780	25,262	35,895
Det., Grand Haven & Milw.	190	148,000	28,000	176,000	212,250	34,595	5,118	167,432	6,631	256,277	3,444	47,484	13,728	
Duluth & Iron Range	284	69,111	19,745	88,856	42,072	72,729	1,306	108,411	13,325	258,550	5,329	161,976	48,791	
Duluth, Miss. & Northern	410	87,804	30,803	118,607	103,233	12,115	3,680	133,222	41,000	406,726	10,546	274,286	96,738	
Duluth, Winnipeg & Pac.	175	104,766	24,892	129,658	132,927	22,644	2,739	88,289	5,383	131,157	6,509	5,139	45,337	
Fort Worth & Denver City	454	428,246	173,078	601,324	31,168	121,537	6,402	269,467	18,464	451,901	21,147	162,193	58,068	
Galveston, Harris, & San Ant.	1,360	1,222,526	401,271	1,623,797	187,860	204,553	13,728	548,327	46,859	1,030,890	59,000	633,978	228,926	
Grand Rapids & Indiana	569	225,661	104,271	330,000	82,925	131,666	10,424	221,262	19,357	427,474	22,929	81,862	142,141	
Grand Trunk Western	347	454,000	1,036,850	1,490,850	102,276	203,235	19,664	385,339	22,669	738,213	37,649	41,012	188,870	
Great Northern	8,255	4,129,960	1,044,608	5,174,568	827,286	1,522,275	89,244	3,367,735	126,014	5,631,979	450,227	297,132	1,374,367	
Gulf & Ship Island	307	127,538	40,777	168,315	33,611	63,476	3,691	63,476	9,984	145,280	11,659	30,736	28,661	
Hocking Valley	349	529,879	65,759	595,638	99,933	266,788	8,166	359,829	19,743	754,212	131,097	180,947	328,961	
Houston, East & West Texas	190	130,323	37,724	168,047	20,665	64,930	2,220	64,930	3,513	107,480	6,540	54,547	605	
Houston & Texas Cent.	948	519,472	156,608	676,080	74,269	99,894	17,344	272,295	21,907	485,421	24,227	37,030	203,801	
International & Grt. Northern	115	685,428	269,829	955,257	119,982	184,567	20,556	452,577	33,413	807,457	30,000	214,944	58,999	
Kanawha & Michigan	176	194,437	46,999	241,436	250,181	34,450	94,135	99,771	8,358	239,440	17,150	6,408	84,959	
Kansas City Terminal	24	317,630	668,211	985,841	10,982	19,783	46,555	68,931	2,663	104,373	20,261	9,886	26,402	
Long Island	398	4,268,980	1,569,450	5,838,430	176,116	183,355	10,127	68,931	37,702	1,104,373	75,972	630,633	1,255,813	
Lou. & Nash.	574	118,258	40,715	158,973	79,815	1,071,468	136,050	2,917,707	127,631	5,734,022	237,357	630,433	1,255,813	
Lou., Hnd. & St. Louis	190	118,258	40,715	158,973	79,815	1,071,468	136,050	2,917,707	127,631	5,734,022	237,357	630,433	1,255,813	
Missouri, Okla. & Gulf	332	108,698	27,955	136,653	22,648	35,133	2,145	88,312	8,380	137,459	9,000	23,674	46,448	
Missouri, Okla. & Gulf of Tex.	9	17,199	637	17,836	2,296	2,204	349	4,500	542	8,991	251	8,828	2,469	
Monongahela	108	138,113	16,357	154,470	57,085	15,608	829	78,606	4,385	156,513	3,750	2,092	72,667	
Nash., Chatt. & St. Louis	1,236	779,904	314,720	1,094,624	115,161	263,389	53,591	621,986	35,855	1,097,535	33,334	62,731	195,593	
New Orleans Great North.	284	113,607	28,192	141,799	17,898	30,695	2,941	59,851	7,347	119,010	8,163	20,931	34,215	
New Orleans, Texas & Mex.	191	132,625	36,982	169,607	173,483	32,430	3,938	55,572	6,771	120,537	1,925	50,710	22,488	
New York, Ontario & West.	567	523,688	69,501	593,189	80,177	163,413	9,190	392,768	20,274	665,822	20,779	2,598	121,259	
Norfolk Southern	907	220,550	87,539	308,089	59,973	60,712	6,549	178,280	19,528	325,143	15,800	4,309	128,919	
Northern Pac.	6,600	4,418,288	1,185,650	5,603,938	792,366	1,034,903	90,321	2,808,821	136,476	4,918,750	79,797	1,246,080	441,689	
Northwestern Pac.	507	187,289	124,880	312,169	72,439	44,687	4,328	138,820	10,003	271,763	75,621	54,672	9,430	
Penn. Co.	1,754	2,628,895	942,455	3,571,350	957,469	1,310,431	90,039	2,891,968	170,558	5,466,062	284,949	1,594,149	1,749,960	
Pere Marquette	2,245	854,038	227,345	1,081,383	282,637	315,425	29,726	810,430	62,679	1,512,983	49,941	300,936	501,927	
Phila. & Reading	1,726	3,518,294	601,778	4,120,072	498,571	1,104,900	41,282	2,788,433	108,297	4,900,796	137,752	139,084	1,953,268	
Pitt., Cin., Chic. & St. Louis	2,398	2,668,635	1,093,720	3,762,371	823,669	1,423,352	94,636	2,684,127	5,206,774	5,206,774	229,162	958,573	1,727,540	
Port Reading	21	36,162	.....	36,162	5,703	2,026	40	122,456	2,668	144,503	9,611	6,548	78,491
Richmond, Fred. & Ft.	87	140,368	219,814	359,182	22,014	52,829	3,852	161,814	8,652	249,547	12,651	150,146	2,438	
St. L., Brownsville & Mex.	548	209,232	89,723	298,955	44,325	43,943	10,021	105,262	11,649	215,134	8,417	101,996	34,754	
St. Louis, Merchant's Bridge Terminal	9	.....	380	380	202,432	33,588	16,124	166,616	6,396	225,670	8,000	2,268	21,479
St. Louis, San Francisco	4,961	2,648,862	1,398,230	4,047,092	522,085	1,034,431	57,220	1,941,336	3,695,071	8,034,872	223,872	489,765	723,218	
St. Louis-San Francisco	732	256,083	88,643	344,726	48,999	58,376	7,233	175,579	15,917	305,887	15,000	57,233	83,058	
San Antonio & Aransas Pass	3,554	1,508,910	760,692	2,269,602	266,366	499,221	72,510	1,194,196	76,237	2,122,725	120,374	285,349	445,543	
Seaboard	6,982	4,217,570	2,418,584	6,636,154	829,911	1,380,087	136,132	3,197,743	178,618	5,781,124	303,298	1,191,299	832,837	
Southern	23	24,599	43,010	67,609	20,988	18,543	791	63,427	7,912	111,741	161,077	37,773	64,896	
System Island Rapid Transit Co.	23	.....	2,338	2,338	58,395	23,349	998	128,539	6,288	221,165	28,717	2,432	124,949
Terminal R. R. As'n of St. Louis	36	.....	1,948,975	1,948,975	242,844	295,285							

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY, 1918

Name of road.	Average mileage operated during period.	Operating revenues			Maintenance of way and structures.		Operating expenses			Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) last year.	
		Freight.	Passenger.	Total.	(inc. misc.)	Equip. ment.	Traffic.	Trans- portation.	General.					Total.
Union R. R. of Balto.	8	\$98,279	\$55,419	\$153,698	\$7,355	\$7,355	\$11,659	\$11,659	\$2,887	\$21,878	\$14,014	\$8,312	\$125,702	\$5,184
Union R. R. of Penna.	35	152,669	267,617	420,286	304,459	38,783	\$177,087	303,133	\$284	525,313	220,854	5,180	226,034	229,828
Virginian	518	579,992	40,973	620,965	665,128	70,301	142,350	302,568	6,222	302,668	125,499	39,000	86,491	255,120
Wabash	2,519	1,547,240	554,527	2,101,767	2,345,567	367,018	367,018	66,239	1,565,342	84,175	2,661,518	106,138	421,655	1,025,881
Washington Sou.	35	53,517	128,120	181,637	230,414	15,468	23,004	1,482	81,617	125,503	104,911	5,485	99,395	21,204
West. Maryland	707	782,928	65,636	848,564	918,821	154,023	277,394	19,747	471,760	966,544	47,723	40,600	90,523	380,904
West Jersey & Seashore	339	152,669	267,617	420,286	159,191	109,469	33,755	9,163	473,755	5,442	158,100	43,200	200,753	177,758
Wheeling & Lake Erie.	512	591,212	31,939	623,151	681,232	114,525	197,395	6,792	370,207	714,966	33,734	48,260	81,994	227,000
MONTH OF FEBRUARY, 1918														
Alabama Great Southern.	312	365,274	160,363	525,637	562,377	51,600	129,893	12,345	204,790	12,968	148,768	20,665	128,008	49,383
Ann Arbor	293	142,369	29,524	171,893	189,566	23,109	39,726	5,228	128,060	8,521	28,894	13,100	28,894	14,147
Arizona Eastern	377	272,608	44,452	317,060	341,290	48,273	38,416	2,627	78,430	15,760	152,284	17,770	134,401	75,371
Atlanta, Birmingham & Atlantic.	639	258,653	51,606	310,259	336,312	68,999	68,068	10,455	154,509	12,014	22,195	15,700	6,469	45,198
Atlantic City	170	51,801	71,519	123,320	130,974	26,182	367,018	2,570	109,241	935	27,579	11,300	38,879	10,929
Atlantic Coast Line.	4,786	2,740,934	1,330,884	4,071,818	4,357,022	635,798	56,314	1,632,209	94,228	2,885,992	1,471,031	160,000	1,315,005	110,170
Baltimore & O. Chic. Term.	79	.....	513	513	90,816	83,770	33,542	821	94,030	11,833	73,660	13,414	97,075	45,995
Baltimore, Chesapeake & Atlantic.	87	21,671	7,020	28,691	6,872	11,104	11,104	562	34,997	2,065	23,391	2,404	25,795	4,501
Bangor & Aroostook.	632	227,559	50,888	278,447	292,854	62,778	63,740	3,335	149,078	11,214	17,735	18,853	79,579	49,759
Belt Ry. Co. of Chicago.	31	.....	.....	.....	27,662	59,817	614	172,591	23,182	268,954	104,54	13,111	24,783	49,759
Bessemer & Lake Erie.	208	509,902	27,735	537,637	563,146	61,119	256,466	9,690	279,776	23,182	589,049	19,700	45,604	29,483
Birmingham & Garfield.	36	195,634	4,459	200,093	34,681	37,782	1,583	44,280	5,261	126,619	80,000	9,565	70,435	56,927
Birmingham Southern	44	84,499	1,165	85,664	106,148	12,621	28,844	1,835	52,530	4,402	98,872	93,15	3,620	2,559
Buffalo & Susquehanna R. R. Corp.	252	191,347	5,403	196,750	199,407	44,718	1,680	82,208	7,435	161,963	37,444	4,100	33,344	14,263
Central of Ga.	1,918	1,085,496	397,131	1,482,627	1,644,265	208,172	253,699	33,536	538,300	43,380	566,895	64,764	501,872	266,096
Central of Vermont.	411	182,948	55,101	238,049	267,841	44,602	68,316	7,354	220,771	11,834	354,768	132,45	104,333	76,864
Charleston & Western Carolina.	342	155,991	43,723	199,714	209,921	24,008	26,558	4,599	89,648	4,485	149,298	71,12	60,624	18,494
Chesapeake & Ohio Lines.	2,478	3,324,230	630,615	3,954,845	4,214,230	549,549	984,428	46,382	1,699,163	97,346	3,396,743	817,487	145,000	671,968
Chicago & Alton.	1,052	991,341	340,901	1,332,242	1,436,370	189,302	412,080	30,969	690,552	36,681	1,371,416	64,960	54,195	304,967
Chicago & Eastern Ill.	1,131	1,244,166	245,444	1,489,610	1,618,833	169,965	576,263	20,909	757,036	46,210	1,575,577	82,128	39,999	270,183
Chicago & Erie.	269	494,546	39,252	533,798	603,169	85,311	114,699	14,886	396,159	18,816	631,920	104,77	76,215	103,831
Chicago & Northwestern.	8,094	4,640,114	1,708,094	6,348,208	8,069,551	1,641,045	109,000	3,998,256	191,607	6,971,268	98,283	420,000	1,021,295	1,021,295
Chicago, Burl. & Quincy	9,373	6,304,580	1,784,122	8,088,702	8,910,265	1,895,347	113,398	3,961,023	254,537	7,112,366	1,371,490	479,229	1,258,570	1,322,547
Chicago Great Western.	1,496	896,125	305,403	1,201,528	1,308,824	144,426	403,062	41,355	616,897	38,763	1,157,395	54,975	96,112	58,669
Chicago, Ind. & Lou.	654	454,091	136,598	590,689	648,696	63,001	171,654	17,154	301,711	21,389	575,542	73,154	31,563	77,557
Chicago Junction	12	.....	230,746	230,746	45,477	64,507	1,468	161,089	8,075	264,635	33,900	1,796	35,686	24,449
Chicago, Rock Island & Gulf.	474	232,609	79,793	312,402	334,061	34,338	65,299	87,959	9,790	236,526	97,534	13,155	84,340	8,848
Chicago, Rock Island & Pacific.	7,824	4,227,373	1,717,991	5,945,364	6,462,895	821,096	1,548,325	130,816	3,089,522	214,604	5,836,112	90,30	355,530	270,774
Chicago, St. Paul, Minn. & Omaha.	1,749	1,091,211	409,516	1,500,727	1,618,776	120,885	307,087	25,103	945,938	46,149	1,458,200	160,577	94,063	65,964
Chicago, Terre Haute & Southeastern.	374	271,702	18,439	290,141	297,985	34,215	99,843	3,812	137,276	8,641	287,255	12,500	1,997	72,057
Cin., Ind. & Western.	321	196,647	38,585	235,232	257,606	21,662	52,360	6,799	119,905	9,137	210,301	47,304	38,082	8,491
Cin., New Orleans & Tex. Pacific.	337	527,346	212,552	739,898	825,222	81,705	25,724	21,953	388,324	22,431	772,827	52,396	38,986	13,347
Cin., Northern.	245	153,156	11,959	165,115	169,188	26,903	48,121	2,572	69,211	3,589	150,368	18,820	7,567	11,253
Cleveland, Cin., Chic. & St. Louis.	2,386	2,966,046	759,637	3,725,683	4,098,857	410,947	906,066	71,360	1,955,514	85,536	3,453,933	644,924	471,956	245,760
Coal & Coke.	197	68,191	18,684	86,875	91,597	18,008	31,740	1,486	42,964	3,455	97,653	6,056	11,056	15,352
Colorado & Southern.	1,103	705,082	133,597	838,679	906,512	122,917	122,917	8,713	325,676	31,109	619,693	286,818	45,000	241,594
Colorado & Wyoming.	42	27,034	2,349	29,383	79,792	4,967	23,229	195	34,025	4,343	36,039	70,23	5,000	18,746
Delaware & Hudson Co.—R. R. Dept.	878	1,679,626	168,521	1,848,147	1,954,697	351,501	599,355	20,229	1,160,553	82,942	2,131,996	109,07	243,959	366,767
Delaware, Lack. & Western.	955	3,103,232	649,803	3,753,035	4,196,251	250,019	848,515	92,496	2,069,867	93,571	3,360,055	80,07	234,661	601,477
Denver & Rio Grande.	2,557	1,605,149	299,902	1,905,051	2,035,285	169,718	350,400	35,032	805,041	46,456	1,582,573	45,272	110,000	341,004
Denver & Salt Lake.	255	52,717	13,108	65,825	71,660	36,245	50,670	935	52,847	3,596	144,292	201,36	9,000	81,633
Detroit & Mackinac.	381	69,258	21,669	90,927	146,622	23,832	2,130	52,590	5,716	98,889	99,83	9,059	8,887	12,621
Detroit & Toledo Shore Line.	80	144,155	.....	144,155	144,408	8,756	11,355	1,639	52,517	3,856	78,124	54,10	66,284	14,306
Detroit, Toledo & Ironton.	441	88,807	7,985	96,792	105,919	25,428	3,330	120,403	9,383	222,404	209,98	116,484	109,863	109,863
Duluth & Iron Range.	284	73,690	18,621	92,311	102,858	64,364	62,871	1,288	100,350	16,403	245,320	142,462	130,348	43,542
Duluth, Missabe & Northern.	410	92,564	29,832	122,396	142,931	104,511	111,874	2,936	131,270	39,185	391,184	273,67	10,481	91,793
Duluth, South Shore & At.	601	177,354	58,777	236,131	252,113	65,621	48,615	8,422	157,280	7,996	290,723	38,610	19,000	82,991
Duluth, Win. & Pacific.	175	93,865	26,510	120,375	121,466	14,593	24,761	2,769	70,824	5,841	118,770	4,696	3,006	67,130
Elgin, Joliet & Eastern.	805	910,615	.....	910,615	1,042,868	207,720	310,359	6,662	505,300	28,894	1,058,731	101,52	15,862	66,635
Erie	1,989	3,490,517	656,175	4,146,692	4,731,132	639,355	1,590,069	76,340	2,904,186	142,882	5,387,448			

More Acknowledgments of Tobacco Shipments

F. A. Poor, chairman of the Railway Regiments' Tobacco Fund, Chicago, has received acknowledgments of the receipt of shipments of tobacco from three railway regiments in France. Ernest Graves, lieutenant colonel of the Fifteenth Regiment, U. S. Engineers, writes under date of March 16, that two shipments of tobacco have been received in good condition and distributed to the men. The first shipment contained 240 lb. of Bull Durham and 5 lb. of Tuxedo smoking tobacco and the second shipment contained 540 lb. of Bull Durham and 15 lb. of Lucky Strike. He stated that "There is no doubt but that the men greatly appreciated both shipments."

H. Burgess, colonel of the Sixteenth Engineers Railway Regiment, has written under date of March 12 that the shipment made on December 16 finally reached them although it arrived and was put into the warehouse just a few hours before the latter burned. "The result was that our tobacco was burnt in a fashion different from that intended. One case however, was rescued and distributed, and all the men very much appreciate the gift."

H. H. Maxfield, lieutenant colonel, commanding the Nineteenth Engineers, Railway Regiment, wrote on March 16 to acknowledge receipt of a shipment of tobacco and stated "The men appreciate this tobacco a great deal more than might be expected, since American troops are entirely dependent upon supplies sent from the States."

Railroad's Initiative Saves Great Food Crop

In response to appeals for maximum food production a year ago the acreage of pinto beans was increased over 500 per cent. Pinto beans, which are particularly adapted to dry regions, were grown extensively on lands which had never produced before, particularly in Colorado, New Mexico and southern Wyoming, and thus constituted a real addition to the food production of the country. When the farmers came to sell their crop, however, it was found that there was no market. This was due to the fact that pinto beans were not known in consuming centers and, while equal to white beans in food value, would not sell because of their spotted appearance.

The Burlington road, which had been particularly active in the spring of 1917 in encouraging the planting of these beans on dry lands and had distributed over 200,000 lb. of bean seed to several thousand farmers, felt a responsibility for finding some means of disposing of the crop, and an extensive publicity campaign was initiated, under the direction of J. B. Lamson, agriculturist. This included the distribution of 25,000 advertising circulars giving facts about the bean, 20,000 copies of recipes for cooking it and 3,000 lb. of samples of the beans. Every retailer in Chicago, every daily newspaper and all wholesalers, jobbers and brokers east of the Mississippi and north of the Ohio river and in the states of Iowa, Missouri, Minnesota and Nebraska were circularized in an effort to create a market. This plan, while effective, was not sufficiently successful to solve the problem, and Mr. Lamson made a special trip to Washington, where he presented the facts to Mr. Hoover personally, and impressed upon him the necessity of utilizing this crop and preventing losses to farmers which would discourage the maximum cultivation of dry lands in 1918. This conference resulted in Mr. Hoover's decision to buy the entire crop remaining in the hands of the growers, for the government, at eight cents a pound to the grower. Members of the agricultural department of the Burlington lines were requisitioned by the government and commissioned to make the purchase and to introduce the pinto bean into the larger cities of the country, thereby continuing the work which they had already initiated. Over 20,000 contracts were made with growers and 150 contracts with elevators in western states. As a result over 55,000,000 lb. of beans have been contracted for and approximately 700 carloads are now being shipped to eastern points as rapidly as possible. Over 300,000 cases of canned pinto beans have been sold to the British army and 150 carloads of the dry beans have been sold to the French government for shipment abroad. The remainder of the beans are being concentrated in warehouses in the larger cities of the country to be disposed of as the market demands or to be shipped to the armies abroad. The Food Administration has arranged to sell pinto bean seed to growers at nine cents a pound, whereas they paid from 15 to 20 cents last year; as a result there is now a prospect of an increase in production over the large yield of last year of about 20 per cent.

Traffic News

Anthracite coal shipments in March amounted to 7,276,777 tons or 280,000 tons each working day. This compares with 6,989,075 tons in March, 1917, and is an increase of 1,464,695 tons over February. The total exceeds by 165,827 tons the October (1917) shipments which, until now, had represented the high-water mark in monthly shipments.

Railroads under the jurisdiction of the regional director of western railroads have been asked to prepare statements showing the names, duties, annual salaries and expenses of men employed in development work, both industrial and agricultural. The request specifies that the list should include those whose titles are colonization agent, immigration agent, industrial agent, agriculturist, etc.

Thirty-three freight and passenger offices in Boston are to be closed at once, according to the Boston Transcript. Those of the Baltimore & Ohio, the Chicago & North Western, the Chicago, Rock Island & Pacific, the New York, Chicago & St. Louis, the Pennsylvania and the Southern have already been closed. The three roads centering in Boston—the Boston & Maine, the Boston & Albany and the New York, New Haven & Hartford—will establish a joint passenger and freight office in a central locality.

The Chicago, Rock Island & Pacific announces that in accordance with the orders of the Railroad Administration it has discontinued outside commercial offices at Atlanta, Boston, Buffalo, Cincinnati, Cleveland, Detroit, Indianapolis, Los Angeles, Louisville, Milwaukee, New Orleans, New York, Oakland, Philadelphia, Pittsburgh, Portland (Oregon), Sacramento, Salt Lake City, San Francisco, Seattle and Spokane. Shippers are advised that matters heretofore handled by these offices should be taken up with the lines on whose rails they may be located.

The statistical report of lake commerce passing through the canals at Sault Ste. Marie, Mich., and Ontario, during the season of 1917 shows that 89,813,898 tons of freight was carried in 1917 as compared with 91,888,219 tons in the season of 1916, or a decrease of about 2 per cent. There was an increase of 13 per cent in the movement of soft coal and 16 per cent in the movement of hard coal, while flour, wheat, grain, copper, iron ore and pig iron traffic decreased quite materially. The report was prepared under the direction of Col. F. W. Altstaetter, Corps of Engineers, United States Army.

Eight hundred canal boats of the old style will be available for use in the New York state barge canal this year, nearly half of this number being suitable for use in carrying grain. This statement has been made on the authority of General W. W. Wotherspoon, New York State Superintendent of Public Works. Inasmuch as the proposed construction of larger boats by the federal government will not probably provide actual means of transportation for several months yet, General Wotherspoon believes it important to encourage the owners of these old boats to make use of them without delay. He has lately made an investigation and finds in cities along the canal zone, more than 50,000 tons of freight now awaiting movement, having been delayed because of railroad embargoes.

Wheatless Dining Cars

The principal railroads are to refrain from the use of wheat foods until after the next harvest, a pledge to this effect having been given to the Food Administration on behalf of the dining car services of the country by B. S. Harvey, chairman of the administrative committee of the Association of Dining Car Superintendents. Mr. Harvey advises that 59 out of 63 dining car services in the country have ratified this pledge, and are not using wheat in any form; and the other four are expected to take similar action. Reports received at Washington from the railroads show that during the month of February the dining car services of the country saved 424,198 pounds of meats and 251,138 pounds of wheat flour.

Buffalo to Baltimore, Eight Days

Major G. F. Bailey, commanding the army motor truck service, announces that a motor truck train, carrying war materials to the Atlantic seaboard will leave Buffalo regularly every morning, and that the trip to Baltimore, Md., is scheduled to be made in eight days, as follows:

First stop, two miles west of Canandaigua, 84.15 miles; second stop, six miles east of Vernon, 109 miles; third stop, four miles west of Albany, 100.6; fourth stop, four miles south of Poughkeepsie, 82 miles; fifth stop, three miles west of Newark, 80 miles; sixth stop, three miles west of Philadelphia, 87 miles; seventh stop, Baltimore (Colgate Creek), Md., 79.5 miles.

The motors are to avoid large cities, and run around the outskirts of towns; and the men will sleep on the trucks and cook their own meals. Acting on complaints from certain cities, some of the drivers have been censured for running at excessive speed.

Modification of Coal Zone System

Under an order modifying the zone system of distribution, bituminous coal originating on the Pennsylvania, Monongahela, and Huntington & Broad Top Mountain railroads, and their short line connections, in the states of Pennsylvania, West Virginia and Maryland, when routed via the Pennsylvania Railroad, is embargoed from Baltimore and Washington markets. To meet this situation, the United States Fuel Administration will arrange for the essential supply to the points designated from mines on the Baltimore & Ohio, the Western Maryland, and their connections, which lines afford a much more direct route to these points. As a consequence the Pennsylvania lines can deliver increased quantities to points in Eastern Pennsylvania, New Jersey and New England. The order forbids the shipment of bituminous coal over the railroads named for delivery in Baltimore, and also all stations on the Baltimore division of the Pennsylvania from Loudon Park, Md., to Catonsville, Md., inclusive and Arbutus, Md., to Washington, D. C., and Rosslyn, Va.; including Popes Creek branch. Consumers located on the Pennsylvania and Baltimore & Sparrow's Point will continue to receive their coal at their regular points of delivery, the coal moving over the Baltimore & Ohio and Western Maryland being delivered to the Pennsylvania at junctions near destinations.

Coal Production

Production of bituminous coal increased 1,600,000 net tons, or over 17 per cent, during the week ended April 13, compared with the preceding week, according to the weekly report of the Geological Survey. The total production, including lignite and coal made into coke, is estimated at 10,947,000 net tons, an average production per working day of 1,824,000 net tons, compared with an average of 1,777,000 tons for the past year and 1,680,000 in April, 1917. Anthracite shipments rose from 32,223 cars to 37,760 cars, an increase of over 17 per cent. The percentage of full time output produced during the week ending April 6 was 61.9 per cent. The percentage of full time output lost on account of car shortage was reduced from 23.2 in the preceding week to 12.5 per cent, while the percentage lost on account of labor shortage increased from 2.6 to 14.2 per cent. The decrease of 14 per cent during the week of April 6 is attributed to the miners' holiday on April 1 and a partial one on April 6 and, the report says, "the exceptional loss of production in the week of April 6 is, therefore, to be attributed to labor shortage rather than car shortage in all fields reported, with the particular exception of the Ohio and New River districts."

In the monthly bulletin for March the production of bituminous coal, including that coked, in the first three months in 1918 is estimated at 135,514,000 net tons, an estimated increase over the same period in 1917 of 744,000 tons, or ½ per cent, but a slight decrease compared with the same period in 1916. January, mainly because of severe weather, was an abnormally low month. Production in February was greater than in February, 1917, but less than in February, 1916. March was a record month exceeding both March, 1917, and March, 1916, and was exceeded in total tons in those years only by October and November, 1917.

Commission and Court News

Interstate Commerce Commission

F. C. Donald, agent for the lines in Central Passenger Association Territory, and E. L. Bevington, J. E. Hannegan and E. E. MacLeod, agents for the western lines, have filed fifteenth section applications with the Interstate Commerce Commission proposing an increase in the charge for the one-way movement of special passenger cars to a minimum of 30 first class fares in place of 25, and a minimum of \$50 for each movement in place of \$25.

E. B. Boyd and Eugene Morris, agents for the western trunk lines and the Central Freight Association lines, respectively, have filed fifteenth section applications with the Interstate Commerce Commission proposing to establish the C. F. A. scale of class and commodity rates governed by the official classification and exceptions thereto between points in Illinois, including nearby related points in Wisconsin, Indiana, Kentucky, Missouri and Iowa, in lieu of the present rates governed by the Illinois and western classifications and the Illinois mileage scale.

Fifteenth Section Application No. 5356 filed by M. P. Washburn, as agent, for authority to make readjustment of the rates on lumber and articles grouped therewith from points of origin in the states of Florida, Georgia, Alabama, Mississippi, Louisiana, on and east of the Mississippi River, Tennessee, Kentucky, Southwest Virginia, and a few points in North Carolina to eastern port cities. Virginia cities and interior basing points, has, by direction of the commission, been placed on the formal docket, and will be set down for hearing as soon as the engagements of the commission will permit.

In a hearing held at New York, April 22, conducted by George T. Bell, chief examining attorney, the Commission took testimony in a complaint of the Pneumatic Scale Corporation, Ltd., of Norfolk Downs, Mass., asking the Commission to prescribe lower freight rates on packages of merchandise in theft-proof and damage-proof metal containers. Complainant asks that such an order be directed not only to the railroads but also to the express companies of the country. C. F. Doble, sales manager of the Pneumatic Scale Corporation, declared that the use of metallic collapsible boxes would benefit newspapers and other printing interests by eliminating the waste involved in the use of wood fibre containers.

Water and Rail Rates Advanced

At the request of the United States Railroad Administration, Division No. 2 of the Interstate Commerce Commission has issued a 15th section order authorizing all carriers subject to the commission's jurisdiction without formal hearing to file schedules increasing the joint rail-and-water; water-and-rail; rail-water-and-rail rates, and all-water rates for the transportation of freight on a level not higher than the existing all-rail rates between the same points, the water rates to include marine insurance. The purpose is to enable freight to be diverted readily from rail to water lines so that they may be utilized in the most efficient way and to avoid congestion. It is provided, however, that the rail-and-water rates to and from Duluth and points grouped therewith shall not be higher than the rates to and from Chicago, and that the rail-water-and-rail rates to and from Minneapolis and points grouping therewith shall bear the relationship to the rail-and-water rates to and from Duluth and points grouped therewith as prescribed by the commission in the second Duluth case, 46 I. C. C. 585. The rates may be established upon not less than five days' notice. In another order the carriers are authorized to establish such rates as may be necessary to take advantage of this authority without observing the long and short haul provision of the fourth section.

Court News

Contract for Special Service

A station agent after telegraphing about the matter told a shipper that a certain train arriving during the night would take his cattle, on which statement the shipper relied. The Arkansas Supreme Court holds that this did not constitute a contract for special service and a discrimination in violation of the Elkins Act.—*Rock Island v. Stallings* (Ark.), 201 S. W., 294. Decided February 18, 1918.

Ejection of Passenger—Exemplary Damages

The Texas Court of Civil Appeals holds that the mere retention in employment by a railroad company of a conductor, after knowledge that he has wrongfully ejected a passenger, does not allow the passenger to secure judgment for exemplary damages against the company; such retention alone not being an adoption or ratification of the malice or violent conduct of the conductor.—*Texas & New Orleans v. O'Connor* (Tex.), 201 S. W., 437. Decided February 21, 1918.

Unauthorized Delivery—Ratification

The Iowa Supreme Court holds that a carrier is not liable for conversion by delivering freight before obtaining the bill of lading, if it afterwards rightfully obtains the bill. It also holds that the delivery of a shipment by the carrier to the buyer, if unauthorized, is ratified by the shipper thereafter, with knowledge of the facts, demanding payment of the price from the buyer, and the shipper is estopped to sue the carrier for conversion. The carrier cannot be held liable for conversion of the goods, consisting of giving them to some one who was not entitled to them, where the plaintiff declares that the buyer owes him the purchase price. The action was one against both the buyer and the carrier.—*Midland Linseed Co. v. American Liquid Fireproofing Co.* (Iowa), 166 N. W., 573. Decided March 6, 1918.

Notice of Claim for Damages

A bill of lading for a shipment of meat provided that claims for loss, damage or delay must be made in writing to the carrier at the point of delivery within four months. The shipper's branch manager and the railroad's freight agent both inspected the meat on arrival and found it damaged. The manager wrote the freight agent the following letter: "This is to confirm our verbal notice of the poor condition of C. R. L. car 3725." The Kansas City Court of Appeals holds, in an action for damages to the meat, that, as there was nothing in the letter mentioning any claim or intended claim of damages, it did not comply with the requirements of the bill of lading. The fact that the plaintiff was investigating the cause of loss did not necessarily mean that it had made up its mind that either of the carriers was liable.—*Cudahy Packing Co. v. Atchison, T. & S. F. (Mo.)*, 201 S. W., 623. Decided February 18, 1918.

Extracting Oil from Right of Way

In 1907 a landowner executed a general warranty deed, in the usual form, conveying to the Wichita Falls & N. W. a strip of land 100 feet wide in Wichita county, Texas, for the consideration of \$1 paid and the further consideration of the enhanced value to the remainder of the owner's land by reason of the construction of the line through it. The company built its road and fenced the right of way. In 1917 it and its lessee, the M. K. & T., leased the right of way to the W. Oil Company, empowering it to prospect for oil, gas and other minerals. In the meantime the landowner sold the remainder of his land "less the right of way." The purchaser leased the land to the P. Oil & Gas Company, which drilled many wells adjacent to the right of way. The W. Oil Company was proceeding to drill wells on the right of way property, when the P. Company sought to enjoin it. The Texas Court of Civil Appeals holds that the conveyance to the Wichita Falls & N. W. vested that company with title to the strip of land and not merely a right of way across it; and as it owned the fee of the land it could not be restrained from extracting oil

therefrom, notwithstanding the Texas statute providing that no corporation shall employ or use its property directly or indirectly for any other purpose than to accomplish the legitimate objects of its creation, or those permitted by law to be applicable.—*Crowell v. Howard* (Tex.), 200 S. W., 911. Decided January 23, 1918. Rehearing denied, February 13, 1918.

United States Supreme Court

Limitation of Liability in Bills of Lading

The Supreme Court of the United States has affirmed the judgment of the Supreme Court of Vermont (90 Vermont, 176), giving a shipper damages for loss occasioned by delay in delivering cattle as a result of the railroad's negligence. The plaintiff had shipped the cattle upon paying the reduced rate under the Uniform Live Stock Agreement. The court said, in part, by Mr. Justice Day: "In the bill of lading now under consideration there is an express agreement limiting liability from unusual delay and detention, caused by the carrier's negligence, to the amount actually expended by the shipper in the purchase of food and water for his stock while so detained. This stipulation contravenes the principle that the carrier may not exonerate itself from losses negligently caused by it, and is not within the principle of limiting liability to an agreed valuation which has been made the basis of a reduced freight rate."—*B. & M. v. Piper*. Decided April 15, 1918.

Rest, Water and Feeding Act

The Supreme Court of the United States has reversed a judgment of the Federal District Court for the Northern District of Illinois, affirmed by the Circuit Court of Appeals (234 Fed. 268), imposing a penalty for alleged violation of the Rest, Water and Feeding Act. The animals were loaded at Ringsted, Iowa, 438 miles from destination—Union Stock Yards, Chicago—at 6 P. M. October 4, and left Clinton, Iowa, 138 miles from Chicago, at 6 P. M. October 5. The ordinary schedule time from Clinton to Chicago is nine hours, but without increase of actual moving speed the run had been made in about six. While passing through Proviso, sixteen miles from destination, a drawbar came out and derailed the car. A delay of two hours and fifty-two minutes followed—not undue, the railroad contended, but the government maintained unreasonably long. Later, at Brighton Park an air hose burst, causing further delay of twenty-eight minutes. The car reached the stock yards at 9.05 A. M. October 6—thirty nine hours after being loaded. The court, by Mr. Justice McReynolds, said: "The statute must be construed with a view to carrying its humanitarian purpose into effect and the exception in favor of the carrier given proper latitude and enforced in the light of practical railroad conditions. Nothing indicates the running schedule was unduly slow; and the jury were improperly given to understand that, conceding matters were properly handled when accidents occurred at Proviso and Brighton Park, they might nevertheless decide the railroad could have got the car to destination within 36 hours if due diligence had been exercised in laying out such schedule. * * * We find nothing in the act indicating a purpose to interfere directly with the carrier's discretion in establishing schedules for trains; the design was to fix a limit beyond which animals must not be confined, whatever the schedule, except under the extraordinary circumstances stated. In general, cattle can be unloaded only at specially prepared places or final destination. If in the exercise of ordinary care, prudence and foresight, the carrier reasonably expects that, following the determined schedule, the car will reach destination or some unloading place within the prescribed time it properly may be put in transit. Thereafter the duty is on the carrier to exercise the diligence and foresight which prudent men, experienced in such matters, would adopt to prevent accidents and delays and to overcome the effect of any which may happen—with an honest purpose always to secure unloading within the lawful period. If, notwithstanding all this, unloading is actually prevented by storm or accident, the reasonable delay must be excused."—*C. & N. W. v. United States*. Decided April 15, 1918.

Equipment and Supplies

Government Orders for Locomotives and Freight Cars Soon to Be Placed

After three weeks of conferences regarding the priority to be given the various activities of the government as to their requirements for steel, an agreement was reached at a conference on April 19 between representatives of the War Industries Board, the Shipping Board and the Railroad Administration, by which the Shipping Board, the Army and the Navy will have priority over the railroads. The Railroad Administration was assured the steel required for the construction of the 2,000 locomotives proposed to be ordered, and for the 100,000 cars, but the car program was required to be changed so as to reduce the quantity of material and especially of steel plates that would be needed.

As a result the all-steel box cars, for which standard specifications were recently adopted, will not be built at this time and less steel than was originally planned for will be used in other types of cars. For example, the 55-ton hopper car will probably be built with wooden sides.

The Railroad Administration was represented at the conference by John Skelton Williams, director of finance and purchases, who, with H. B. Spencer, chairman of the Central Advisory Purchasing Committee, had held conferences previously with J. L. Replogle, the steel expert on the War Industries Board. The Shipping Board had objected to the amount of steel asked for by the railroads and it is the negotiations on this subject, together with the negotiations with the car builders, on the question of prices which have caused the long delay, in consequence of which the placing of the orders for cars has not yet been accomplished.

It was expected that the Railroad Administration would let contracts during the week for 100,000 freight cars on a basis of cost plus 5 or 6 per cent. The builders had asked for cost plus about 10 per cent but it is understood that the officers of the administration are confident that their terms will finally be accepted.

It is planned to place orders for approximately 100,000 additional cars in about 6 months.

The proposed standard designs and specifications for 12 standard types of locomotives were approved in general by the Regional Directors at a meeting on April 19, and orders are to be placed shortly for probably 1,000, which are expected to be delivered before January 1.

Preliminary consideration has also been given to the rail situation. It is stated that about 40,000 tons of rail are being delivered weekly on old orders.

Freight Cars

THE NEWBURGH & SOUTH SHORE is asking for prices on 100 gondola car bodies.

SWIFT & Co., Chicago, has ordered 100 tank cars from the Pennsylvania Tank Car Company.

THE ILLINOIS ZINC COMPANY has ordered 10 hopper cars from the American Car & Foundry Company.

Iron and Steel

The Western Pacific wishes to sell 1,000 tons of 35-lb. rail and 2,000 tons of 40-lb. rail.

THE LOS ANGELES & SALT LAKE CITY has offered the following rail for sale for use in necessary industrial, logging and mining tracks and other necessary work: Forty-seven track miles of 75-lb. rail; eight track miles of 60-lb. rail; three track miles of 56-lb. rail and 13 track miles of 52-lb. rail.

THE LONDON & NORTH EASTERN EMPLOYS 8,520 WOMEN as compared with 1,575 employed before the war.

Supply Trade News

The Hall Switch & Signal Company announces that effective May 1 its general offices will be located at Garwood, N. J.

The Maloney Oil & Manufacturing Company has removed its New York office from 50 Church street to 17 Battery place.

Frederick W. Parks, for 10 years advertising manager of the American Well Works Company, Chicago, died in that city on March 25.

George W. Bender, whose appointment as eastern manager of Mudge & Co., Chicago, with office at 30 Church street, New York, was announced in these columns on April 19, was born



G. W. Bender

at Pittsburgh on August 20, 1884, and at the age of 17 entered the engineering department of the Pressed Steel Car Company of that city. In 1906 he accepted a position with the American Locomotive Company, where he had charge of the extra work order department. In 1910 he became associated with Mudge & Co. as chief draftsman, and subsequently was given charge of the mechanical department. Later on he was made assistant to the vice-president, a position he held until his appointment as eastern manager in charge of the business of Mudge & Co. in the New England and Atlantic Coast states.

Charles J. Donahue, formerly assistant vice-president in charge of sales of the American Locomotive Company, died at his home in New York, April 20, after a long illness. Mr.

Donahue was the son of a locomotive engineer. He was born at Cleveland, March 8, 1871. His first position in railway service was in the motive power department of the Lake Shore & Michigan Southern at Cleveland. Here he showed marked ability and was rapidly promoted. He served successively as chief clerk to the superintendent of motive power of the Lake Shore under G. W. Stevens, W. H. Marshall and H. F. Ball, and as chief clerk to W. H. Mordue, general manager. From there he was called to Chicago as chief clerk to C. E. Shaff, vice-president of the Lake Shore. In September 1, 1908, he was appointed secretary to W. H. Marshall, president of the American Locomotive Company, and two years later was appointed assistant vice-president in charge of sales, which position he held up to July, 1917. He retired from the American Locomotive Company to form a company to handle railroad supplies, but ill health prevented the accomplishment of this purpose.



C. J. Donahue

The Grip Nut Company will move its offices from the McCormick building, Chicago, to the Railway Exchange building, on May 1.

N. M. Garland, of New York, district manager for the Ohio Brass Company, has been elected a member of the board of directors of that company.

N. D. Chapin has been appointed director of the interstate commerce and railway traffic department of the LaSalle Extension University, Chicago.

Clyde P. Benning, whose appointment as western manager of Mudge & Co., with office in the Crocker Building, San Francisco, in charge of the business of that company in the Pacific Coast states was announced in these columns on April 19, was born in Atchison, Kan., on September 20, 1888, and was educated in the public schools of that city. In 1903 he entered the service of the Missouri Pacific and held positions as messenger in the chief despatcher's office, telegraph operator and freight office and yard clerk. In 1904 he was employed as timekeeper in the master mechanic's office of this road, remaining in that position until April, 1905, when he entered the Missouri Pacific shops as machinist apprentice, later being promoted to machinist. He left the road in 1910 to accept a position with the Tool and Railway Specialty Company at Atchison, remaining with that concern until December 15, 1914, when he entered the service of Mudge & Co. as shop inspector. He was soon after appointed chief inspector and subsequently held the position of service engineer. In 1916 he was made assistant to the vice-president, which position he held until his appointment as western manager, as noted above.

H. A. Jackson, whose election as president of the Chicago Pneumatic Tool Company, Chicago, was announced in the *Railway Age* of April 19, was born in Bethlehem, Conn., on July 7, 1881. He is a graduate of the Lawrence Scientific School of Harvard University, class of 1903, but devoted an additional year to a special course in metallurgical work in the graduate school there. Mr. Jackson entered the employ of the Bethlehem Steel Company in July, 1904, where he served an apprenticeship in the various departments of the works, thus gaining practical experience and an intimate acquaintance with the steel business by personal contact with the production end. He later entered the sales department of the Bethlehem organization. A number of years ago Mr. Jackson was sent to Boston to open the Bethlehem Steel Company's office there and to organize its sales and executive forces in that territory. He continued in the position of sales agent at Boston until his election as president of the Chicago Pneumatic Tool Company at a special meeting of the board of directors held in New York on April



C. P. Benning



H. A. Jackson

19. He is not an entire stranger in Chicago, where he now has his headquarters, as he was sales agent in that city for the Bethlehem company for several months early in his career. As president of the Chicago Pneumatic Tool Company he succeeds **W. O. Duntley**, resigned.

P. L. Maher, business manager of the Eastern Car Company, Limited, of New Glasgow, N. S., has been appointed assistant to the president of the Damascus Brake Beam Company, Cleveland, Ohio, effective April 15. Mr. Maher will specialize on shop operation and efficiency.

Paul W. Wendt of the P. W. Wendt Company, railway supplies, Chicago, has been appointed assistant production manager in charge of steel, of the Emergency Fleet Corporation, United States Shipping Board, in the Chicago district comprising, Michigan, Indiana, Illinois, Wisconsin, Minnesota and Iowa.

G. E. Warren, assistant division engineer of the Universal Portland Cement Company, Chicago, has been promoted to division engineer, with the same headquarters. **J. W. Lowell**, assistant division engineer at Chicago, has been promoted to division engineer at Pittsburgh, succeeding **K. H. Talbot**, who has received a commission as first lieutenant in the construction division of the Quartermaster's Department of the United States Army. **G. S. Eaton** succeeds Mr. Lowell as assistant division engineer at Chicago.

The Ohio Electric & Controller Co., 5900 Maurice Avenue, Cleveland, has been incorporated with a capital stock of \$200,000 for the purpose of manufacturing lifting magnets and electrical controlling devices. Lifting magnets will be built at once and controlling devices later. The officers of the new company include **F. W. Jessop**, president; **W. B. Greene**, vice president; and **A. D. Walter**, secretary and treasurer. Mr. Jessop was formerly works manager of the Electric Controller & Manufacturing Company, Cleveland. He has had an extensive experience in the manufacture of lifting magnets and electrical apparatus for the control of motors.

The Schroeder Headlight Company, Evansville, Ind., manufacturer of locomotive oil and electric headlight and turbo generators, has been purchased by **W. A. Carson**, vice-president and general manager of the Evansville (Ind.) Railways, the Owensboro (Ky.) City Railroad and the Henderson (Ky.) Traction Company, and a number of associates, some of them interested with him in the Evansville Railways. A new company known as the Schroeder Headlight & Generator Company has been organized with Mr. Carson as active vice-president and general manager. Mr. Carson has been connected with the Evansville Railways since July, 1908. He was assistant to the general superintendent of the Indianapolis & Cincinnati Traction Company from 1903, to 1906, and assistant general manager of the Indianapolis, Columbus & Southern Traction Company from 1906 to 1908. Since his connection with the Evansville Railways the company has constructed a number of interurban connections and through a syndicate of the officers of that company, of which Mr. Carson was a member, has purchased the city lines of Henderson and Owensboro, Ky. In 1912 a lease was secured on the line of the Illinois Central Railroad between Evansville and Henderson and this property was electrified by the Evansville Railways. A gasoline car ferry was installed to transfer the interurban cars across the river. In 1913 the Crescent Navigation Company was incorporated with Mr. Carson as president to operate on the Ohio river in connection with the railway properties. Mr. Carson retains his connection as vice-president and general manager of the Evansville Railways in an advisory capacity and will continue as president of the Crescent Navigation Company.

Trade Publications

PIPE TOOLS.—Catalogue 38, entitled "Pipe Tools" and issued by the Greenfield Tap & Die Corporation, Greenfield, Mass., shows the complete line of pipe tools made by this corporation. The quick release and quick return features of the Greenfield receding pipe threader are emphasized, and the catalogue contains an extensive list of stocks and dies, burring reamers, pipe cutters and wrenches. The back of the catalogue contains considerable useful information and several tables.

THE LOCOMOTIVE FURNACE.—Bulletin No. 1 of the American Arch Company is a condensed treatise on combustion and the relation of locomotive furnace and boiler proportions to the efficiency of combustion and heat absorption in the locomotive boiler, prepared by J. T. Anthony. The text is illustrated with charts, diagrams and drawings and is based upon a thorough study of the available data bearing upon the subject. It should be in the hands of every locomotive designer.

MOTOR-DRIVEN COMPRESSORS.—The Westinghouse Traction Brake Company, Pittsburgh, Pa., has issued a high-grade, finely illustrated booklet describing in detail its complete line of motor-driven air compressors, both stationary and portable, ranging in capacity from 11 to 110 cu. ft. Compressed air accessories for doing almost every possible kind of work are included. Users of compressed air tools will find many new features and valuable labor-saving devices in this book, which is designated as publication No. 9035 and has been copyrighted.

PACKING AND MECHANICAL RUBBER GOODS.—Jones Packings is the title of a 28-page catalogue which has been issued by the Jones Packing Company, 50 Church street, New York. A complete line of fibrous packings for oil, ammonia, steam, acid, water, syrup, air, alkali, etc., is illustrated and briefly described, with price quotations. The line includes ring, spiral and coil packings of various sections and types of construction; sheet packing; asbestos, duck insertion and tubular gaskets; pump valves, water and steam hose; diaphragms, etc.

LIFTING JACKS.—Catalogue "F," recently issued by the Joyce-Cridland Company, Dayton, Ohio, contains descriptions, illustrations and prices of a complete line of lifting, pulling and pushing jacks. The hydraulic jacks include both inside and outside pump types with a wide range of capacity up to 200 tons. The line of geared screw jacks in capacities of 25 to 75 tons, include types suitable for both bridge and railroad shop work. The line also includes automatic geared jacks, automatic lever jacks, track jacks, telescope screw jacks, traversing bases for lifting jacks and jacks for special classes of service. Repair parts for the various jacks are illustrated and listed in convenient form for ordering.



OVER THE TOP TOGETHER

Financial and Construction

Railway Financial News

BUFFALO, ROCHESTER & PITTSBURGH.—The New York Public Service Commission has authorized this company to issue \$1,500,000 4½ per cent 50-year consolidated mortgage bonds. The company has also received authority from the commission to pledge all or any part of the bonds as collateral security for short-term loans under certain prohibitions. The proceeds of the loans are to be used to pay for cost of additions and betterments.

CANADIAN NORTHERN.—Hon. A. K. Maclean, Acting Minister of Finance at Ottawa, has given notice of a resolution making provision for dealing with the maturing obligations of the Canadian Northern. It is as follows: "Resolved, that it is expedient to provide that as five-sixths of the six hundred thousand shares of the capital stock of the Canadian Northern Railway Company have been transferred to the Minister of Finance, as required by chapter 24 of the statutes of 1917, the Governor in Council may assist the Canadian Northern, or any company included in the Canadian Northern System, in renewing or postponing the payment of any indebtedness of any such company, on such terms as may be agreed on, by guaranteeing in whole or in part the payment thereof, with interest, or the notes or obligations given for such renewal of postponement; provided that the amount of principal to be so guaranteed shall not exceed the amount of the indebtedness, the payment of which is renewed or postponed; and, further, that the guarantee shall be in such form and signed by such person as the Governor in Council may approve, and shall inure for the benefit and security of the holder for the time being of the indebtedness or the notes or other obligations representing the same; and that any payments which may be required to be made pursuant to any such guarantee shall be made out of the consolidated revenue fund of Canada, and the order in Council authorizing such guarantee shall be conclusive evidence for such holder that the terms and conditions of this resolution have been complied with, and that such guarantee is legal and binding."

CHESAPEAKE & OHIO.—Garrett B. Wall has been elected a director to succeed Decatur Axtell, who resigned as vice-president and director in February. Other retiring directors were re-elected. A resolution was passed at the annual meeting authorizing the directors to negotiate agreements with the United States Government for operation of the road under Government control, and for compensation to the railway company for the use of its property. Another resolution, authorizing the company to incorporate in itself, for convenience in accounting and management, various subsidiary companies, of which it owns all, or practically all, of the capital stock, failed because the three-fourths majority of the capital stock, required by the charter to be represented at a meeting taking such action, was not obtainable. The meeting accordingly adjourned until May 3, when it is hoped the required amount of stock representation may be obtained.

ILLINOIS CENTRAL.—C. B. Seger has been elected a director to succeed Judge Robert S. Lovett, resigned.

NEW YORK CENTRAL.—The regular quarterly dividend declared by this company was 1¼ per cent and not 1½ per cent as was incorrectly stated in the *Railway Age* last week.

NEW YORK, NEW HAVEN & HARTFORD.—At the annual meeting of the stockholders, Vice-president Buckland explained the government's operation of the property by agreement. He said that the basis of reimbursement first established the net operating revenues at \$21,500,000. Out of this the company must pay \$18,000,000 for rentals of leased lines and interest on indebtedness, leaving about \$3,000,000 available for dividends, to which will be added the benefit of 1 per cent, saved in interest in the refinancing of \$43,000,000 by the government. The law, how-

ever, gives the President power to compel the putting back into the road for betterment of all kinds a portion of the whole of the net revenues available for dividends. Stockholders asked what the dividend would amount to and Mr. Buckland thought it might be 1 per cent. The matter of dividend rested with the President and would be determined by the amount of net surplus made available. While on the face of things the amount available might appear to be as high as $3\frac{1}{2}$ per cent, there was no certainty that the dividend would be that.

Walter B. Lashar of Bridgeport was elected a director to succeed Eli Whitney of New Haven, resigned.

NORFOLK & WESTERN.—See editorial comments elsewhere in this issue.

PENNSYLVANIA RAILROAD.—An agreement was approved by the Pennsylvania Public Service Commission by which the Pennsylvania Railroad will acquire the stock ownership of the Cornwall & Lebanon and the Susquehanna, Bloomsburg & Berwick railroads. For years the Pennsylvania has held a controlling interest in these companies.

UNION PACIFIC.—R. S. Lovett has been succeeded as a director by Henry W. Clark, counsel of the company, and Marvin Hughitt has been succeeded by his son Marvin Hughitt, Jr. The following executive committee has been appointed: C. B. Seger, chairman, W. A. Harriman, Otto H. Kahn, William Rockefeller, Mortimer L. Schiff, and Frank A. Vanderlip.

WESTERN PACIFIC.—Alvin W. Krech, of New York, has been elected a director and has also been chosen chairman of the board of directors.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company is building a transfer freight house at Argentine, Kan., 32 ft. wide by 1,000 ft. long, 300 ft. of which will be two stories in height. The building will be a frame structure resting on a concrete foundation. J. E. Nelson & Co., Chicago, have the contract for the work, which will cost about \$70,000.

CHICAGO, BURLINGTON & QUINCY.—This company has awarded contracts for the construction of a freight house and a storehouse at Casper, Wyo., to G. A. Johnson & Sons, Chicago. The freight house will be 50 ft. by 110 ft., 90 ft. of which will be two stories. It will be a steel frame structure resting on concrete foundations with brick walls and a composition roof. The storehouse will be of brick construction, 48 ft. by 70 ft., resting on a concrete foundation and covered with a composition roof.

SOUTHERN PACIFIC.—The Public Service Commission of Oregon recently granted the application of the Oregon State Highway Commission for the elimination of the crossing at grade of the West Side highway with the Newberg branch of the West Side division of the Southern Pacific in Washington county, Oregon. The commission has ordered that an undergrade crossing be installed at this point approximately 200 ft. west of the present grade crossing, with a minimum lateral clearance of 24 ft. and a minimum vertical clearance of 15 ft. The cost of the overhead structure, the necessary grading and filling and the additional cost of drainage incident to the construction of the crossing, will be borne in equal proportion by the Southern Pacific and the Oregon State Highways Commission, and the cost of maintaining the overhead structure and necessary abutments will be borne by the railroad, while the expense of maintaining the roadway and surface thereof will be borne by the highways commission.

SOUTHERN RAILWAY.—This road in connection with the building of the government nitrate plants at Muscle Shoals has authorized the following work at Sheffield, Ala., and vicinity. Additional tracks and extension of existing tracks in the Northern Alabama yards; additions and alterations to the Union passenger station and the construction of a baggage room in connection therewith; construction of a two story extension to an office building in connection with the freight station which is to be enlarged, all at Sheffield; and rebuilding four piers of the bridge over the Tennessee river at Florence.

Railway Officers

Executive, Financial, Legal and Accounting

Henry F. Green has been appointed general real estate and tax agent of the Chicago & Alton, with headquarters at Chicago, Ill., succeeding **T. A. Rittenhouse**, who has been granted an indefinite leave of absence.

J. L. Beven, terminal superintendent of the Illinois Central at New Orleans, La., has been appointed assistant to the executive vice-president of that road and of the Yazoo & Mississippi Valley, with headquarters at Chicago, effective April 19.

L. R. Deevers, whose appointment as auditor of the Wheeling & Lake Erie, with headquarters at Cleveland, Ohio, was mentioned in these columns on April 5, was born at Pittsburgh, Pa., on January 14, 1884. Following his graduation from Westminster College, Pa., in 1906 he entered the service of the Wheeling & Lake Erie as a clerk in the office of the auditor of disbursements. On September 1, 1909, he was appointed shop accountant of the car shops at Toledo, Ohio. He remained there until March 1, 1914, when he went to Cleveland, Ohio, as chief clerk to the auditor. He was promoted to assistant auditor on June 1, 1915, and on September 1, 1917, was appointed acting auditor during the absence of the auditor on account of illness. On April 1, 1918, he was promoted to auditor to succeed **C. H. Holmes**, resigned.

S. T. Bledsoe, whose appointment as general counsel of the Atchison, Topeka & Santa Fe was announced in the *Railway Age* of April 12, was born in Clinton county, Ky., on May 12, 1868. He was educated in the Southern Normal School and Business College at Bowling Green, Ky., and at the University of Texas. He entered railway service as a local attorney for the Gulf, Colorado & Santa Fe at Ardmore, I. T., in 1895, and was appointed attorney for Indian Territory, for the same company in 1907. From 1908 to July, 1912, Mr. Bledsoe was a member of the firm of Cottingham & Bledsoe, solicitors in Oklahoma for the Santa Fe lines. On the latter date he became general attorney for the Santa Fe at Oklahoma City, Okla., retaining his connection with the firm of Cottingham & Bledsoe. On January 1, 1915, he was appointed assistant general solicitor of the road, with headquarters at Chicago, having special charge of valuation and tax matters, supervision of proceedings before state commissions and of litigation resulting from their orders and from legislative acts. On April 2, 1918, he was appointed general counsel to succeed Walker D. Hines, who resigned to accept service with the government.

J. C. Davis, attorney for the Chicago & North Western at Des Moines, Iowa, has been appointed general solicitor in charge of the legal department of the company under government control. The entire law department of the road has been reorganized in conformance with the order of the Railroad Administration to divorce corporate matters from operating matters. The officers here given will confine their activities to work concerned with the operation of the road. **W. G. Wheeler** and **A. A. McLoughlin**, attorney for the North Western in Nebraska, have been appointed assistant general solicitors. **E. R. Hart**, general attorney, retains that title.



S. T. Bledsoe

under the new organization, and **R. H. Witticombe**, commerce attorney, has also been appointed general attorney. The offices of assistant general counsel and commerce counsel have been discontinued. These changes were effective on April 22.

Operating

J. E. Fairhead has been appointed general superintendent of the Pittsburgh & West Virginia and the West Side Belt, with office at Pittsburgh, Pa., vice **E. M. Alvord**, resigned.

A. M. Burt, whose appointment as acting general manager of the Northern Pacific lines east of Paradise, Mont., was mentioned in these columns on April 12, was born at Syracuse, N. Y.,



A. M. Burt

on May 1, 1866. He entered railway service as a rodman on the Colorado Midland in 1885. In 1889 he went with the Northern Pacific as an instrument man, later being appointed assistant engineer. From 1892 to 1897 he was assistant engineer on the Adirondack & St. Lawrence, the Wisconsin Central and the Chicago & North Western. On January 1, 1897, he reentered the service of the Northern Pacific as supervisor of bridges and buildings, and in March, 1901, was appointed assistant superintendent. From Octo-

ber, 1902, to January 1, 1914, he was superintendent of various divisions in Dakota, Montana and Washington. From the latter date until April 1, 1918, he was chief engineer maintenance of way, with headquarters at St. Paul, Minn. As acting general manager he succeeds **J. M. Rapelje**, promoted, and will continue to have headquarters at St. Paul.

L. M. Davis, whose appointment as superintendent of the Northern division of the Great Northern, with headquarters at Crookston, Minn., was announced in these columns February 22, was born in 1881. He entered the service of the Chicago & North Western as a telegraph operator on June 3, 1899. He was later promoted to relief agent and worked at various points on the line until July 1, 1905, on which date he was promoted to train dispatcher in Chicago. On May 1, 1907, he was appointed night chief dispatcher and on June 15, 1909, was appointed chief dispatcher of the Wisconsin division, with the same headquarters. On May 1, 1913, he was promoted to trainmaster of the same division, which position he held until January 1, 1916, when he resigned to enter the service of the Great Northern as chief dispatcher at Minot, N. D. On September 10, 1916, he was transferred to Grand Forks, N. D.; on November 1, 1916, he was promoted to trainmaster of the Dakota division, with the same headquarters, and on July 1, 1917, he went to St. Paul, Minn., to take a course in the accounting department of the Great Northern. The course expired December 31, 1917, and he was returned to Grand Forks as trainmaster, which position he held until February



L. M. Davis

20, 1918, on which date his appointment as noted above became effective.

J. F. Alsip, trainmaster of the Northern Pacific at Tacoma, Wash., has been appointed acting assistant to the general superintendent of the western district, with the same headquarters, effective April 10.

E. D. Hungerford, assistant superintendent of the Chicago, Rock Island & Pacific at Minneapolis, Minn., has been appointed acting superintendent of the Cedar Rapids division, with headquarters at Cedar Rapids, Iowa, succeeding **G. A. Merrill**, who has been granted leave of absence on account of illness. **F. M. Patt** has been appointed acting assistant superintendent at Minneapolis, to succeed Mr. Hungerford.

G. A. Morson, general manager of the Cuban Central, has been appointed general manager of the United Railways of Havana, the Western Railway of Havana, the Havana Central, and the Cuban Central, with headquarters at Havana, Cuba, and **T. E. Keyworth**, superintendent of locomotives on the Cuban Central, with office at Sagua-la-Grande, has been appointed assistant general manager of the Cuban Central, with headquarters at the same place.

Victor Parvin whose appointment as superintendent of the Virginian Railway, with headquarters at Princeton, W. Va., has already been announced in these columns, was born on July 6, 1883, at Laurel, Del., and was educated in the graded schools. He began railway work on November 1, 1899, with the Baltimore, Chesapeake & Atlantic, and served as operator and agent until June, 1901, and then went to the New York, New Haven & Hartford in the same capacity. In March, 1902, he returned to the service of the Baltimore, Chesapeake & Atlantic, as dispatcher and from July, 1904, to February, 1907, served consecutively as operator, clerk, car distributor and dispatcher on the Washington, Danville and Durham divisions of the Southern Railway. He then returned to the service of the New Haven as chief dispatcher on the Western division. From October, 1912, to July, 1914, he was chief dispatcher on the Minneapolis & St. Louis, and then was appointed trainmaster on the same road. From February to June, 1917, he was car distributor in the office of the general superintendent of transportation of the Southern Railway Lines West, and then was appointed yardmaster of the Baltimore & Ohio, with office at Newark, Ohio. In December, 1917, he entered the service of the Virginian Railway as trainmaster, which position he held at the time of his recent appointment as superintendent of the same road as above noted.

Traffic

Tinsley Smith, commercial agent of the Central of Georgia, with office at Denver, Colo., has been appointed division freight and passenger agent, with office at Chattanooga, Tenn., vice **W. E. Stewart**, assigned to special service.

Dan C. Pettibone, manager of mail traffic and general baggage agent of the Northern Pacific, has been transferred to the president's staff, with headquarters at St. Paul, Minn., retaining the title and office of manager of mail traffic, effective April 11. In addition, he will perform such other duties as may be assigned to him.

C. P. Barrett, general western passenger agent of the Delaware, Lackawanna & Western, with office at Chicago, has been appointed division passenger agent, with office at Buffalo, N. Y.; **E. J. Quackenbush**, division passenger agent at Buffalo, has been appointed division passenger agent, with office at Syracuse. The general western passenger agency and the traveling passenger agency at Chicago will be abolished on May 1.

John A. O'Brien, general agent in the passenger department of the Chicago, St. Paul, Minneapolis & Omaha, at Minneapolis, Minn., has been assigned to other duties and his office has been abolished. The traffic offices of the Omaha at Helena, Mont., and Tacoma, Wash., were closed on April 15. Freight and passenger matters previously under the jurisdiction of the Tacoma (Wash.) office will hereafter be handled by **Frank W. Parker**, general agent at Seattle, Wash. Matters previously under the jurisdiction of the Helena (Mont.) office will be handled directly from the traffic department headquarters at St. Paul, Minn.

Engineering and Rolling Stock

O. J. Egleston has been appointed chief engineer of the Utah Railway, with office at Salt Lake City, Utah, vice **H. G. McMechen**, resigned to accept service with another company.

Frank A. DeWolff, master mechanic at the Sagua-la-Grande, (Cuba) shops of the Cuban Central, has been appointed assistant superintendent of locomotives, with office at the same place.

O. R. Hale, assistant superintendent of locomotives of the Cuban Central, with office at Sagua-la-Grande, Cuba, has been appointed superintendent of locomotives, with headquarters at the same place.

Herbert S. Wilgus, engineer maintenance of way of the Pittsburg, Shawmut & Northern, with office at Angelica, N. Y., has been appointed chief engineer and his former position has been abolished.

John L. Smith, master mechanic of the Pittsburg, Shawmut & Northern, with office at St. Marys, Pa., has been appointed superintendent of motive power and equipment, and his former position has been abolished.

E. H. Mattingly, general car foreman of the Baltimore & Ohio, at South Chicago, Ill., has been appointed general car foreman in the Chicago district of the Baltimore & Ohio and the Baltimore & Ohio Chicago Terminal.

H. K. Fox, chief draftsman in the motive power department of the Western Maryland at Hagerstown, Md., has been appointed engineer of tests of the Chicago, Milwaukee & St. Paul, with headquarters at Milwaukee, Wis., succeeding **W. T. Bennison**, resigned.

J. A. Conley, master mechanic of the Atchison, Topeka & Santa Fe at Raton, N. M., has been transferred to the Valley division, with headquarters at Fresno, Cal., succeeding **John Pullar**, transferred to the Los Angeles division, with headquarters at San Bernardino, Cal., effective April 11.

Robert H. Boykin, division engineer of the Erie, with office at Susquehanna, Pa., has been appointed assistant superintendent of maintenance, with office at New York, vice **H. Knight**, promoted; **Charles M. Lewis**, assistant division engineer at Susquehanna, has been appointed division engineer of the Delaware division and the Wyoming division and branches, vice Mr. Boykin, and **H. D. Row**, supervisor at Jamestown, N. Y., has been appointed assistant division engineer, with office at Susquehanna, succeeding Mr. Lewis.

F. H. Masters, division engineer of the Elgin, Joliet & Eastern, with headquarters at Gary, Ind., has been promoted to assistant chief engineer, with office at Joliet, Ill., succeeding **G. H. Jennings**, resigned to become general manager of the Powers-Thomson Construction Company, Joliet. **Arthur G. Dorland**, assistant engineer at Joliet, has been transferred to Gary and placed in charge of the engineering work previously handled by Mr. Masters. **J. W. Webster**, valuation engineer at Joliet, has assumed the duties of Mr. Dorland, in addition to his present work. All of these changes were effective April 15.

Railway Officers in Government Service

Shelby S. Roberts, consulting civil engineer, Chicago, has joined the staff of the regional director of southern railroads at Atlanta, Ga.

Ralph Peters, Jr., assistant superintendent of the Long Island, with office at Jamaica, N. Y., has received a commission as second lieutenant in the Railway Transportation Corps of the National Army.

W. R. Wood, mechanical engineer of the Great Northern, St. Paul, Minn., has been appointed mechanical engineer on the staff of **Ralph Budd**, assistant in charge of capital expenditures to the regional director of western railroads, Chicago.

B. M. Bukey, assistant general passenger agent of the Atchison, Topeka & Santa Fe at Chicago, has been appointed assistant to **H. P. Anewalt** who is in charge of naval traffic for the U. S. Railroad Administration, with headquarters at Washington, D. C.

First Lieutenant **G. C. Kennedy** of Company F, Thirteenth Engineers (Railways) in France, has been promoted to captain. Mr. Kennedy was formerly chief despatcher of the Gulf, Colorado & Santa Fe at Beaumont, Tex. Second Lieutenant **S. S. McConnell** of the same company, formerly clerk in the superintendent's office of the Atchison, Topeka & Santa Fe at Emporia, Kan., has been promoted to first lieutenant, and **E. P. Dudley**, also a Santa Fe man, has been commissioned second lieutenant.

W. E. MacEwen, traffic manager of the Peerless Transit Line, Cleveland, Ohio, has been appointed director of traffic for the Western Petroleum Refiners' Association, with headquarters at Kansas City, Mo., and will work in conjunction with **O. M. Conley**, representative of the oil director of the U. S. Fuel Administration, and **B. L. Swearingen**, representative of the regional director of western railways, in connection with the problem of expediting the movement of tank cars to meet the demands of the government and its allies.

Obituary

Henry Russell Lloyd, fuel agent of the Chicago, Milwaukee & St. Paul until his retirement in 1910, died at his home in Chicago on April 12.

H. S. Hills, master mechanic of the Louisville & Nashville, with office at Ravenna, Ky., died recently at his home in Irvine, Ky., at the age of 52.

Joseph W. Taylor, secretary of the American Railway Master Mechanics' Association, Master Car Builders' Association, and Western Railway Club, died suddenly on Wednesday morning of this week.

EQUIPMENT OF AN INFANTRYMAN.—A table showing that more than eighteen pounds of metal enter into the composition of articles required for the equipment of each infantryman has been prepared by the Ordnance Bureau of the War Department. The metal equipment carried by each infantry soldier weighs 294.65 ounces, consisting of 153 ounces iron and steel, 12.35 ounces tin, 62.7 ounces brass, 24.2 ounces aluminum, 36.4 ounces of metal in bullets, consisting of lead, tin and cupro-nickel, and 6 ounces of other metal. An additional weight of 114.7 ounces is added by equipment of cotton, wool, leather and wood.—From *The Engineering and Mining Journal*.

BRITISH LOCOMOTIVE WORKS IN SPAIN.—Filson Young, writing from Madrid to the London Daily Mail, on March 5, says a powerful combination of British and Spanish industrial interests, involving an initial capital of \$5,000,000, has been completed between Messrs. Babcock & Wilcox and some of the most important industrial forces in the country, including the Altos Hornos Company, of Bilbao, the only steel producers in Spain. He adds: "The principal object of the combination is the manufacture of high-class locomotives, marine and land boilers, and solid drawn tubes on a new principle which will supersede the Mannesmann process. Works which will be by far the largest in Spain will be erected near Bilbao and give employment to 2,000 men. Messrs. Babcock & Wilcox will undertake the equipment of the factory with British machinery and will direct the technical management until the year 1940. No complete boilers have hitherto been constructed in Spain, and locomotives have almost exclusively been imported from Germany, the value imported in 1913 being \$2,500,000. Although a few have since been imported from the United States at a cost of \$50,000 each, the transport of the country has been practically paralyzed for the last year and a half. This enterprise will make Spain independent of outside supplies for many years to come, and will greatly facilitate the provision of light railways, which is one of the most urgent of the country's needs. The King of Spain, who received the managing director of the British company on his recent visit here, has taken a great interest in the combine, which is generally regarded with enthusiasm as the forerunner of many similar commercial alliances between the two countries."

WAKE UP!—Thus far, we are certain, the Germans haven't invented any long range gun that will carry across the Atlantic. But it would require such a gun to awaken some Americans to the realization that we are in this war.—*Utica Herald-Dispatch*.